ELECTRICAL REVIEW

26th JUNE, 1953

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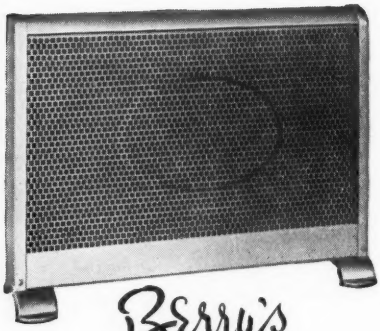

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THE OLDEST ELECTRICAL PAPER • ESTABLISHED 1872 • VOL. CLII • NO. 26

Contractors' Problems

WE have remarked on previous occasions the perennial nature of the troubles which beset the electrical contractor. They never seem to alter although they vary in intensity from year to year. Mr. W. T. Trace's presidential address at the E.C.A.'s Bournemouth Conference this week showed that this state of things continues. Before the supply industry was nationalized the contractors complained about municipal trading, although it was not only the local authority undertakings which carried out installation work and sold appliances—many of the companies were quite as active in this direction. Nationalization may have accentuated this tendency; at least it has become more prominent. We would prefer the Electricity Boards to concentrate on the distribution of electricity, but it is unlikely that they will consent to do so. The contractors may, by negotiation, be able to persuade them to limit their activities and they may secure a fair share of the available installation work by offering better terms, and this they should be able to do if the Boards quote fairly.

In the selling of equipment the contractors find it very difficult to provide or procure the necessary finance for hire-purchase schemes. Outright sales of the larger appliances form a small proportion of the business and only the "kettle and iron" trade is left for the contractor. The granting of discounts to large or special buyers is said to have reached a pitch at which the term "trade discount" has become farcical. This is a matter which the Electrical Fair Trading Council constantly has before it.

Relationships between the E.C.A. and the Electrical Trades Union are not over-cordial, but as it is the main function of a trade union to secure more money for its members, while employers endeavour to keep down costs, this is not unusual. The two parties are at least united in their advocacy of compulsory registration of contractors and their operatives. This again brings in the B.E.A. and Electricity Boards who wish, instead, to establish a National

Inspection Council as a means for ensuring safe and sound installations. So far the scheme has hung fire because the E.C.A. is not convinced that it would achieve the desired result. The contractors and the union, to quote Mr. Trace, " are satisfied that nothing which does not possess a proper element of statutory control will have the desired effect." It must be said, in conclusion, that in spite of all their difficulties the members of the Association seem still to thrive. They have sufficient energy and adaptability to deal with each problem as it arises and with the continuing expansion of electrical service there is still plenty of room for them.

" ALL CLEAR " SOUNDED

The long-awaited pronouncement on advertising by the electricity supply industry was made last Friday by the Minister of Fuel and Power and the B.E.A. and Electricity Boards are now free to acquaint the public with the benefits of electricity as in former times. Already the Electrical Development Association has laid its plans and an extensive campaign is under way. Mr. Geoffrey Lloyd linked the raising of the ban with the need for encouraging rural electrification and announced at the same time that the permitted amount of capital expenditure on this account was to be raised to about £7·5 million during the ensuing year, compared with the figure of £3·0 million " inherited by the present Government." Much credit for this decision lies with the chairmen of some of the Area Boards, and particularly Mr. S. F. Steward of the South Western Board, who have constantly urged the need for more generous treatment.

CHIEF JOSEPH DAM

Some sort of compromise seems to have been arrived at in the allocation of the Chief Joseph Dam contracts by the U.S. Army authorities. The renewed tender of the English Electric Co. for the transformers, again the lowest, has been accepted but the order for the generators has been given to the Westinghouse Co. which reduced its original price to a level below that of the English Electric Co. While the result is not altogether unsatisfactory from the British point of view, it is unusual in this country to give unsuccessful tenderers a second chance with knowledge of their competitors' prices.

" DIFFERENTIALS "

Objections were raised at the annual conference of the National Union of General and Municipal Workers against the engineering unions' decision to demand a 15 per cent increase in wages. The union has a substantial proportion of its membership in the engineering industry and the view of its members is that a flat-rate all-round increase should have been asked for. On the other hand the craft unions say that this would narrow the " differential " between the wages of skilled and unskilled men. While we still consider that any demand for higher wages is unjustifiable in present conditions, we agree that the margin between the two classes of workers should be preserved. Otherwise the supply of craftsmen will rapidly diminish, for how many men will serve a long apprenticeship and secure no material advantage at the end of it?

CRITICAL STEAM PRESSURE

The decision of the Ohio Power Co. to install in its Philo power station a 120 MW set (with two reheat stages) for operation at 4,500 lb/sq in and 1,150 deg F marks a major advance in the trend towards higher steam conditions. The critical pressure of approximately 3,200 lb/sq in (700 deg F) will be passed for the first time in commercial practice. As the water then becomes steam, instantaneously, the boiler requires no drum and is essentially a tube within which water is pumped at one end to be finally ejected as superheated steam.

Electricity in Jamaica

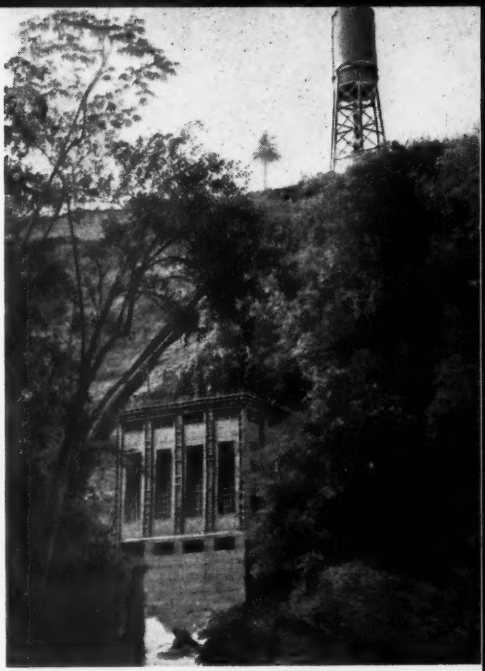
Impressions from a Recent Re-visit

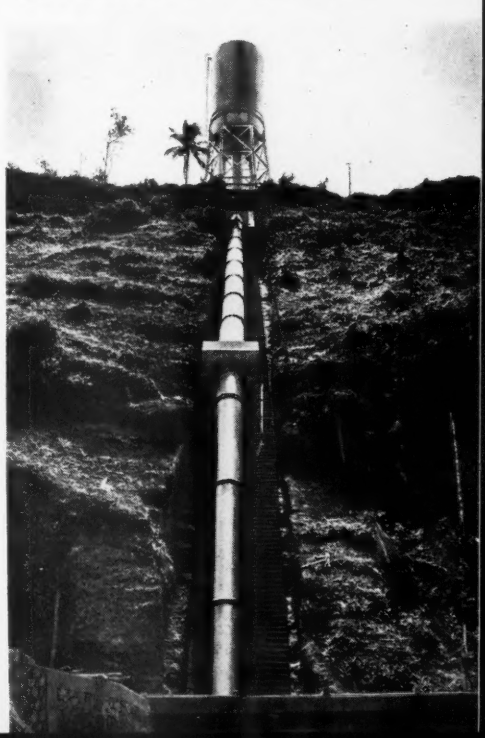
By D. EDMONDS

FORMERLY a purely agricultural island, producing sugar, bananas, citrus and, of course, rum, Jamaica has now a large and expanding industrial community which manufactures, among other things, textiles, matches and cement, while an increasing amount of fruit canning is done. In addition, much of the work which was formerly done in small workshops by hand is now being carried out by machine, wood-working machinery probably being the best example of this. The electrical load is divided in approximately the following proportions:—Irrigation, 25 per cent; industry, 35 per cent; and farming and domestic, 40 per cent, with a total of 96,942,792 kWh generated in 1952.

Electricity supply started in Jamaica in 1890 with the granting of a Provisional Order to the Jamaica Electric Light and Power Company to operate a system in the city of Kingston, the capital. On 15th November of that year the company started operating at the Gold Street station, providing a 1,100/52V, single-phase, 125 c/s supply. This was later altered to a 104 V system by virtue of tappings on the transformer secondary. The alternators were of exceptionally high reactance and had very poor regulation; they were 10-pole 1,500 r.p.m. machines fitted with a two-piece commutator with 10 segments which rectified the current in part of the circuit, giving a unidirectional impulse in the field, thereby compounding it. The station equipment consisted of multitubular boilers and tandem compound engines coupled by belts to the generators. There were three 35 kW alternators and a 70 kW set was installed later.

In 1893 the West India Electric Co.,





The Lower White River power house, showing (below) the surge tower and vertical drop pipe-line, the pipe-line here being made of steel

Ltd., was formed, with Canadian capital, to lay down and operate an electric street railway in Kingston and St. Andrew. To supply this railway the company built the first Bog Walk station, 22 miles from the capital; this was the first hydro-electric station in Jamaica. The railway was to have d.c. from rotary convertors fed from Bog Walk and since at that time the frequency limit was 40 c/s for economical operation, that figure was selected.

In 1905 the West India Electric Co. acquired the complete holdings of the Jamaica Electric Light and Power Co. Two years later the earthquake which destroyed Kingston wiped out the Gold Street station and when it was decided to rebuild the station 40 c/s equipment was installed, able to be paralleled to the existing Bog Walk equipment.

Belliss and Morcom reciprocating engines were installed with G.E.C. three-phase 40 c/s 2,300 V alternators of 300 kW and 200 kW capacity. A third machine, of 500 kW, driven by a triple expansion engine was put in later. This plant was paralleled through a bank of transformers with the Bog Walk plant, the voltage of the Gold Street station being raised from 2,200 to 13,200 V, the latter being that of the Bog Walk transmission line. This was successfully run until 1923 when the Jamaica Public Service Co. bought the complete holdings of the West India Electric Co. and started developing the system with modern steam turbines of the Brush-Ljungstrom type. The figures given in the accompanying table indicate the expansion of the Jamaica Public Service Co. The company now has 59 miles of 66 kV transmission line, 297 miles of 6·6 kV distribution line, and 381 miles of line under 6·6 kV. There are six stations interconnected by a 66 kV line, as follows:

Year	kWh generated	Number of customers	kWh sold	kW load
1925	5,066,690	4,257	1,646,835	1,550
1952	96,942,792	29,066	80,891,460	18,320

Gold Street (steam) consists of three 2,000 kW Brush-Ljungstrom generators, 40 c/s, and one American G.E. 3,000 kW alternator, 40 c/s. The boilers are Babcock & Wilcox oil-fired and the plant uses condensers cooled by sea water from Kingston harbour.

Bog Walk (hydro) employs a head of only 53ft, run of the river, the intake being led through an 8ft diameter steel pipe; each generator is directly coupled to a horizontal 40 c/s water turbine and the station has an output of 1,050 kW.

Upper White River (hydro) was brought into operation in 1945 and is made up of one 3,600 kW 40 c/s generator connected to a vertical water turbine.

Roaring River (hydro) was put into service in 1947 and consists of one 4,050 kW 40 c/s generator operated by a vertical water turbine.

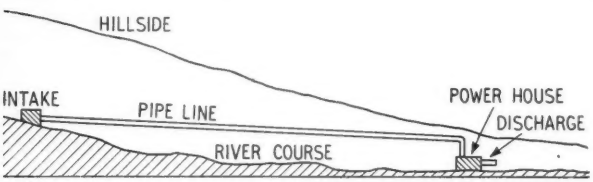
Lower White River (hydro) was opened in 1952 and has one 4,750 kW 40 c/s generator directly coupled to a vertical water turbine.

Vernam Field (diesel) was built by the Americans during the last war when they had an air base there. Since then the station has been taken over by the Jamaica Public Service Co. and is interconnected with the other five stations listed above. There are three 40 c/s generators with a total capacity of 2,333 kW.

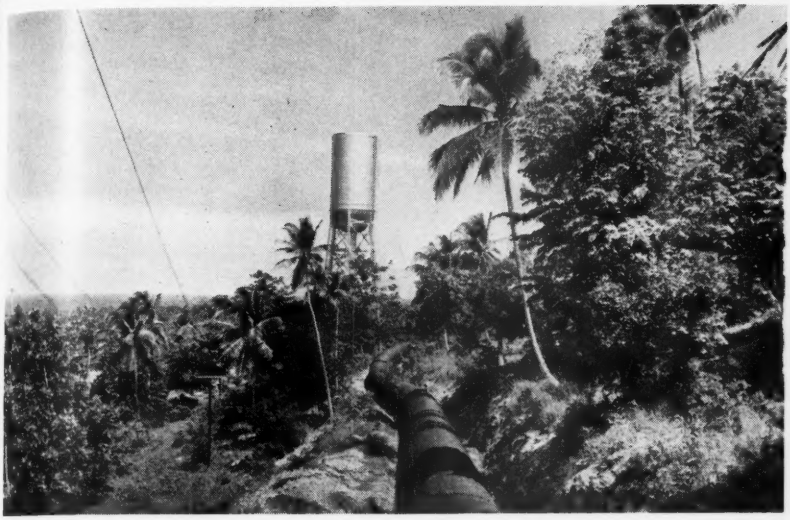
There are also five small stations for supplying the needs of their surrounding districts; they are not interconnected because they are too far away from the network. These five stations are in the towns of Montego Bay, Port Antonio, Falmouth, Black River and Lucea; they all have 60 c/s diesel sets which, together, have an output of 1,912 kW.

Hunts Bay, one of the stations under construction at the present time, is situated west of Kingston; one 10,000 kW machine is being installed and a second identical set is on order. This is designed to run at two speeds (with minor adjustments) for 40 c/s and 50 c/s.

With this exception future development



Schematic diagram of typical layout



Part of the pipe-line above the surge tower in the Lower White River scheme; the pipe-line is of wood stave construction. The picture gives a good idea of the nature of the ground to be traversed

is to be mainly hydro-electric. Jamaica was given its name from the old Arawak name meaning " Island of Springs." The trouble experienced in harnessing their energy is that the streams tend to be seasonal only and, except in the rainy part of the year, have insufficient flow for really large development. For this reason the schemes in the Island tend to be small and numerous. In these stations use is also made of the run of the river and large dams are not constructed because of the nature of the rock formation. There are a large number of faults in the structure of the hills and this makes the erection of a dam rather hazardous, as the inhabitants have found to their cost.

The layout of a typical scheme might be as follows:—The intake is made some little way upstream and the water is carried by pipe-line along the side of the river valley to a convenient point where it is brought down vertically to the power house. The pipe-lines are of either steel or wooden stave construction, depending on the nature of the pressures likely to be met and the nature of the ground over which the pipe is to pass. In general, wood stave pipe is used for the near level runs and steel pipe for the vertical drop. Wood stave piping is less expensive and gives long service.

An exception to the general rule is the Lower White River scheme which has a regulating dam. The water from the Upper White River outlet is taken by a canal through a regulating dam to the Lower White River power house and a certain amount of water is stored during the day for use during the night peak period. The lower station is unmanned and is controlled from the upper station.

It is now desired to raise the frequency to the more conventional 50 c/s. New equipment ordered for the Hunts Bay station is to be operated at 40 c/s for the present but the machines are capable of being operated at the higher frequency. When this change will be made has not yet been decided but no doubt it will have to come eventually, as it has been recommended by the Investigating Committee of the World Bank which recently visited Jamaica.

Because of the difficulty in obtaining 40 c/s equipment it was decided to endeavour to use some transformers designed for 50 c/s on the 40 c/s system. The e.m.f. of a transformer may be written as: e.m.f. = k.f.T. flux, where f = frequency, T = number of turns, k = constant, or, for

a constant area and constant e.m.f., as flux density $\propto \frac{1}{\text{frequency}}$

If then the frequency is reduced the flux density will be increased and if the flux density were increased by 1·25 the magnetizing current may increase by as much as three times. In this case tests on the transformers showed that the magnetizing current at 40 c/s was 100 per cent of the full-load current. The power factor under these conditions was, of course, very poor indeed.

The power factor of many of the consumers in Kingston is very bad and the worst offenders are those few small workshops, mentioned previously, which employ a number of small machines; the power factor of one of these workshops is as bad as 0·45 lagging uncorrected. Irrigation is an example of a very good power factor (nearly unity) since synchronous motors are employed for the most part.

Development in the industry is envisaged as being very rapid indeed; a target of 60,000 kW by 1960 is one of the figures quoted. Since many authorities are of the opinion that the future of Jamaica lies in its industrial potentialities the way should be open for a very full expansion during the next twenty years. When, however, individual industries start generating their own power it will be a big challenge to the supply company and this is a challenge that the Jamaica Public Service Co. will have to meet in the future.

Labour Party's Policy

"CHALLENGE to Britain" is the title of a statement of policy issued last week by the Labour Party (Transport House, Smith Square, London, S.W.1, price 6d). The publication ranges over the whole field of the national economy and it is necessary only to mention those sections which directly affect the electrical industry.

Expansion of industrial production, principally for export, is dealt with. It is recognized that the country's best hope of increasing overseas trade is to pay special attention to products which involve special experience and skill and new lines. Stress is laid on the necessity to maintain our scientific and technical leadership.

In the endeavour to increase coal production there is an urgent need for research into new machinery and more energetic production of new models. As regards fuel and power generally it is said that "the expansion programme for coal, electricity and gas must be co-ordinated and our fuel and power resources used in the most effective way. This requires planning of both prices and production."

The Party proposes to restore the iron and steel industry to public ownership "on terms which will ensure that no profit is made at the expense of the public."

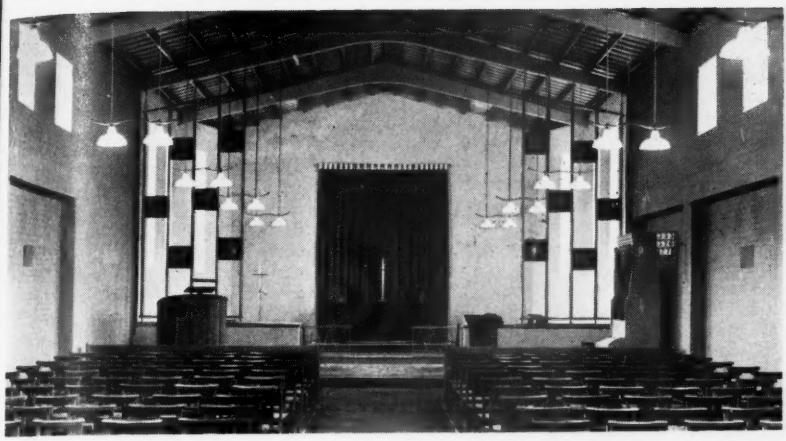
To ensure the expansion of the engineering and allied industries the Party intends to guarantee supplies of raw materials by, *inter alia*, instituting long-term bulk buying arrangements and overseas development schemes; ensuring an adequate supply of risk capital at cheap rates; and setting up an Export Promotion Organization.

In a reference to heavy electrical engineering the statement says:—

> "More investment, at home and abroad, will depend on a considerable increase in capacity in that section of the electrical engineering industry which manufactures capital equipment. It is by no means certain that this expansion will take place. Sections of the industry concerned with generators, motors and transformers were referred to the Monopolies Commission in 1952; and it remains yet to be seen whether the industry's practices under private ownership conform to the nation's interests.
>
> "Labour will review the capacity and the policies of this industry after the report of the Monopolies Commission has been published and take action to ensure that this vital industry is fully at the nation's service."

It is stated that "to prevent the waste of resources through inflation, Labour must also exercise powers of direct economic control." This would involve the regulation of imports, control of exchange and the movement of capital abroad, the regulation of investment, the control of the location of industry and price control.

In the matter of taxation, a capital gains tax will be considered and steps will be taken to ensure that private companies shall re-invest as much of their profits as possible rather than distribute them as dividends.



Church Warming

Use of Low Temperature Radiant Floor Panels

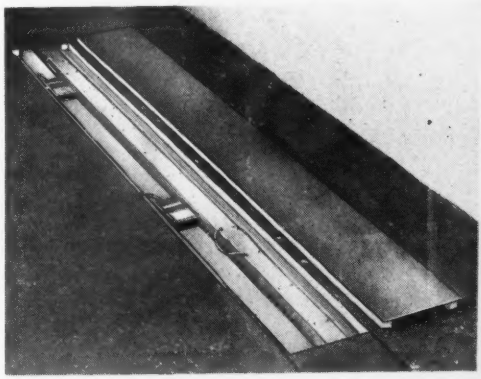
BOTH capital and running costs, as well as efficiency, convenience, cleanliness and saving of labour, have influenced the decision to adopt a low temperature radiant electric floor panel system for heating the new St. Peter's Church at Cowgate, Newcastle-on-Tyne, the first new church to be consecrated in the diocese since 1939.

In the "Panelec" system adopted aluminium ducts carrying the two-core lead covered cupro-nickel heating cables are laid at intervals of 9in across the width of the church, bonded together to give continuity to earth, and then covered with 12 gauge ¾in mesh expanded metal to ensure even distribution of heat, a 3in concrete screed completing the floor surface. Linoleum is at present being used as a floor covering but eventually wood blocks will be substituted.

Measuring 120ft long with a span of 30ft the building has a total floor area of 3,600 sq ft, including the vestry. The total cubic capacity is approximately 94,000 cu ft. The design provides for the addition later of side aisles and a tower. The walls are of brick, the ceiling consisting of an aluminium lining on which is a 1in thick layer of cork insulation, with roofing felt above. It is intended ultimately to add a copper roof covering.

The normal distribution is 10 W per sq ft giving a total heating load of 43 kW.

A section of the ducting with cover removed to show connection boxes for the heating cable



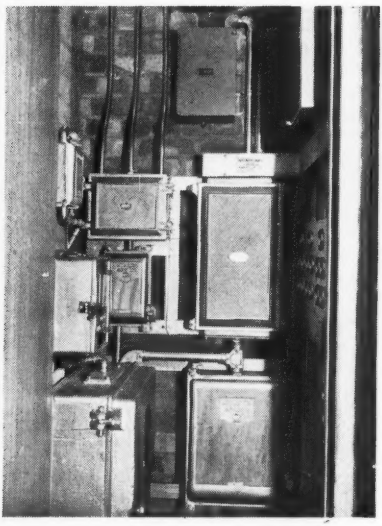
Under normal climatic conditions and with an air temperature maintained at 65 deg F the floor surface temperature does not rise above 70 deg F. The 82 ton mass of concrete in the floors provides a very considerable degree of thermal storage and no difficulty is experienced in maintaining the desired temperature with the heaters switched on, by Venner time switches, only during off-peak hours (7 p.m. to 7 a.m. and noon to 2 p.m.).

Automatic control of the temperature is secured by the use of four thermostats, two of which are installed in the nave, and one each in the chancel and vestry. These thermostats operate six Londex relays governing various sections of the heating installation. Fifteen Crabtree sectional switches and main switches (M.E.M.) make it possible to cut out some of the circuits, maintaining the temperature just high enough to preserve the fabric of the building when no services are being held. Incidentally the installation of the control gear is a model of compactness, the whole of the apparatus being fitted into a switchroom 2ft 6in deep by less than 3ft.

Operating continuously the heating installation has an estimated annual consumption of 68,000 kWh costing just over £300. For heating on Sundays only (forty a year) the consumption would be reduced to about 35,000 kWh costing about £128. It is of course a great advantage to the church authorities to be able to obtain an accurate estimate of the cost of operating the heating system, the capital cost of which is comparable with that of a solid fuel or gas installation in view of the fact that no boiler house is required. Other striking advantages of the electrical system are the ease of operation, and the avoidance of draughts and discoloration of decorations, there being no air movement.

Thanks are due to Messrs. Edwards & Manby, the architects for the church; Messrs. Hepplewhite & Manuel, the electrical contractors; and the North Eastern Electricity Board for their assistance in preparing this article.

The switchroom is a model of compactness



Water Power Resources

IN a report on "Hydro-Electric Potential in Europe" (170 pages, including 31 tables and 13 figures and maps, 7s 6d), the United Nations Economic Commission for Europe, Geneva, has collected available data regarding water resources. Its primary aim is to assess on a uniform basis theoretical upper limits of power possibilities in regard to static head, stream flow and precipitation under the various conditions found in several countries. From this it deduces the proportions which can be, first, technically and, secondly, economically exploited in the future.

Among the points discussed are the effects of the proportion of hydro to fuel-burning power stations and of storage to run-of-stream plants, rate of load increase, load factor and load duration, seasonal demands, and distance from centres of consumption. Typical examples are quoted of technical progress that has improved economic prospects. Thus the rate of excavation of tunnels is about 3½ times what it was 25 years ago and the efficiency of Francis turbines has improved by 20 per cent since 1910. The considerable decrease in capital expenditure per kW with increase in capacity is also shown. In France, for example, a real saving in construction costs of 30 per cent has been achieved over the past thirty years, but as elsewhere costs of developing more difficult sites tend to rise.

With total electrical production increasing by 5 to 10 per cent per annum, water power seems likely to continue to supply 40 per cent of the aggregate. Estimated technical potential varies widely in different areas but nowhere exceeds 50 per cent of the gross potential. Economical potential, however, appears to be fairly constant at between 17 and 20 per cent of the gross value.

Industrial Safety

Exhibition and Congress at Birmingham

THE second biennial Safety and Factory Exhibition organized by the Birmingham and District Industrial Safety Group was officially opened last Friday at Bingley Hall by the Lord Mayor of Birmingham, Ald. G. H. W. Griffith, J.P., and will continue until 4 p.m. to-day (Friday). In conjunction with it a congress organized by the Royal Society for the Prevention of Accidents was held over the week-end with the theme "Training for Safety and Health in Industry."

Guidance for Young People

Welcoming the Lord Mayor at the opening ceremony, Mr. W. J. Barber, deputy managing director of the Midland Electric Manufacturing Co., Ltd., and chairman of the Birmingham Industrial Safety Group, pointed out that the exhibition with its sixty stands was the largest of its kind to be held in the country. They had always paid great attention to the educational side of the work and had made arrangements for thousands of young persons at school and in industry to visit the exhibition. He emphasized that the achievement had been accomplished by a voluntary movement.

Stressing the importance of promoting industrial safety, the Lord Mayor said they were proud of the fact that much of the work had grown from the enthusiasm and activities of Birmingham men. While the human element could not be eliminated it was possible to suggest by means of practical demonstrations safety measures for the men who worked the machines. The slogan "Safety with Efficiency" should be encouraged.

At a lunch given at the Midland Hotel by the Midland Electric Manufacturing Co., Ltd., in connection with the exhibition, Mr. Barber said that the death of five persons a day due to industrial accidents would continue until they were prepared to do more about it. A committee set up by the Department of Scientific and Industrial Research had certain funds to administer for "human relations in industry" and he felt that money could not be put to better use than to assist in the reduction of industrial accidents. Mr. Barber also referred to essay and poster competitions for apprentices, young workers and students being held in connection with the exhibition.

The Lord Mayor said that industrialists in Birmingham had already shown great regard for industrial safety but he felt that the Group should receive greater help. All the 1,200 different trades in Birmingham had hazards to be overcome. Lord Llewellin, president of the Royal Society for the Prevention of Accidents, said that he did not believe in "safety first" but in safety going along with efficient production. If a high rate of production was to be achieved the people running the factories must be interested in safety and there was no better service to the country than a crusade for saving lives and suffering. Mr. R. Bramley-Harker, H.M. Superintendent of Factories, chairman of the Exhibition Committee, said that the exhibition reflected a very great effort by the participants.

Composite Displays

Nine of the largest stands are arranged as composite displays of Group member firms. Apart from the more obvious safety devices such as machinery guards there are a number of special features, many of them of an electrical character. The remains of a switch fuse bears the injunction "Don't tamper with Electricity—Send for the Electrician," while there is a display panel indicating the correct and incorrect ways of installing everyday electrical accessories. Demonstrations are given of protective clothing for such purposes as soldering connections in electric motors and there is a display of Witton-Kramer magnetic sweepers for floors and carpets. Portable lamps with magnetic grips, lamps with magnifying lenses, and rubber bladed fans are other items with a bearing on safety.

With a typical polishing motor with safety sleeves and dust extracting unit shown by W. Canning & Co., Ltd., is a chrome

plating vat with exhaust fan and ducting demonstrating the method of withdrawing fumes away from the operator: a device called " Chroffles " keeps down the spray prevalent on the solution surface. Another method of disposing of acid fumes is provided by the " Colasit " cabinet and tower exhibited by the Hockley Chemical Co., Ltd., while Dallow, Lambert & Co., Ltd., show a new type of dust collector with a variety of fan, filter and dust container combinations covering the requirements of practically every industry. An example of a photo-electric cell press brake guard is to be seen on the stand of J. Broughton & Son (Engineers), Ltd. The " Flowstrut " universal slotted angle system is the latest Fisher & Ludlow addition to factory efficiency equipment.

Electrical safety applications in the gas industry are a feature of the West Midlands Gas Board's stand where automatic pilots or flame-failure devices are shown. One of these, an Ether " Flamecontrol " unit, works on an electronic system, the other (Perl Controls, Ltd.) operating by means of a thermocouple.

The importance of clean, non-skid floors is emphasized by a number of exhibitors. Scrubbing, polishing, suction drying, scarifying and sweeping machines shown by Cimex-Fraser Tuson, Ltd., have been designed to maintain efficiently every type of floor. Dunlop switchboard matting gives protection against high voltages. Other protective equipment includes goggles, gloves (including special types by the Southwark Manufacturing Co., Ltd., for arc welders), boots with steel toe-caps, respirators and anti-dermatitis creams.

HIGH VOLTAGE TEST UNIT

A MOBILE h.v. test unit has just been put into service by Crompton Parkinson, Ltd., for the d.c. testing of cable installations at up to 33 kV. It comprises a two-valve rectifier with alternator, electrostatic voltmeter and control board permanently installed in a 15–20 cwt Morris-Commercial van. Other equipment includes a Wheatstone bridge and " Meggers," to provide for fault localization and other field tests, in cable systems of up to and including 33 kV. The equipment can also be used for certain h.v. tests on switchgear and transformers.

All the equipment is mounted so as not to be affected by vibration and shock when the vehicle is travelling. The valves are connected to give a maximum d.c. output of 120 kV between poles, i.e., 60 kV to earth. The equipment can be energized from any 230 V single-phase supply but the vehicle is also fitted with an alternator rated at 1·65 kVA 230 V single-phase 50 c/s at 3,000 r.p.m. It is driven from a power take-off fitted to the gear box of the engine. The alternator voltage is adjusted by an excitation regulator to its rated voltage, but adjustment of the voltage input to the step-up transformer, and therefore of the d.c. voltage, is effected by an induction regulator. This, energized either from the mains or the alternator, gives an output of 0–100 V.

The regulator is operated by a d.c. motor fed from the 12 V vehicle battery and controlled by push buttons on the control panel. This panel is also fitted with a voltage regulator for the alternator, together with voltmeter, ammeter and frequency meter, valve filament controls, a single-pole circuit breaker and fuses for the low-voltage equipment and circuits.

Glass screens above the control panel protect the operators from contact with high-voltage equipment when alive, and give a clear view of the electrostatic voltmeter for the d.c. output, the heater circuit milliammeters and the area beyond the back of the van. The two bucket seats in the driver's cab are so arranged that they can be turned round quickly for use by the operators when testing.

The equipment was designed by the Test Department staff of the Crompton Parkinson cable factory at Derby, and the installation was carried out by works personnel in a special body built by Kennings, Ltd., of Derby.

Crompton Parkinson mobile h.v. test unit

TRANSPORT COMMISSION'S RESULTS

Electrical Aspects of Annual Report

A SURPLUS of £4·5 million is announced in the report and accounts for 1952 of the British Transport Commission (H.M. Stationery Office, 10s 6d). This reduces the accumulated deficit to £31·5 million.

A section of the report gives an account of the railway electrification and electrical engineering work carried out during the year. Full electrical operation of the freight line Wath - Barnsley Junction - Dunford began as planned on 4th February. It was the first large-scale venture of its kind in this country and presented novel problems in the electrical hauling and banking over a heavily-graded route of trains made up of loose-coupled wagons not fitted with vacuum brakes. The power supply equipment, including the overhead contact wire system, was practically trouble-free, but it became necessary to reduce train loads from 850 to 750 tons because of a mechanical defect in the locomotives and uncertain adhesion. It is hoped that relatively minor changes to some of the details of the locomotives, determined after an important series of tests, will enable the full loads to be restored.

Work on the remaining sections of the scheme continued satisfactorily. Substations at Gorton, Newton, Hadfield and Neepsend were built and largely equipped, and the 33 kV cables and pilots were practically completed. Fifty-two locomotives of the Bo + Bo type (double-bogie, each bogie with two driving axles) had been completed by the end of the year and electrical equipment for Co — Co locomotives (double-bogie, each bogie with three driving axles) was being manufactured for erection in 1953.

Experimental System

Much valuable information was gained from the experiment of operating electric trains on the Lancaster-Morecambe-Heysham line equipped on a high-voltage 50 c/s system with supplies taken direct from the national grid. Only one rectifier-equipped three-car train set was available in 1952 and trial running began in mid-November. The experiment showed that interference with telecommunications was worse than expected and it is necessary to replace open-wire telephones with cables.

The 2,500 h.p. Brown-Boveri gas-turbine locomotive was mainly employed on passenger and milk trains on the Paddington-Bristol route, Western Region. It was undergoing a general overhaul at the end of the year, and at the same time a train-heating boiler of greater capacity was being installed and steps taken to overcome trouble with the turbine blades. The 3,000 h.p. Metropolitan-Vickers gas-turbine locomotive did good work, mainly in express passenger service on the Paddington-Plymouth and Paddington-Bristol routes. It is said to be too early to come to definite conclusions about the development prospects of this type of traction on British Railways.

Diesel-Electric Locomotives

The two Southern Region main line 1,750 h.p. diesel-electric locomotives did good service on the Waterloo-West of England express passenger trains. To improve their performance with heavier trains, it was decided to change the gear ratio and increase the capacity of the train-heating boiler, and the changes on one locomotive were completed by the end of the year.

On the London Midland Region the two 1,600 h.p. locomotives were mainly engaged on freight work, but during the summer worked express passenger trains on the Euston-Liverpool and Euston-Blackpool routes. The locomotives are being transferred to the Southern Region so as to concentrate these high-powered machines in one region.

The London Midland Region 827 h.p. mixed traffic diesel-electric locomotive was transferred temporarily at the end of July to the Southern Region to assess the possibilities in that region of a locomotive of this power in passenger and freight work.

No multiple-unit stock in the 1952 programme was built during the year. The

outstanding items from the 1951 programme were completed and electrical equipment was installed in 28 motor and 14 trailer coaches for the Southern Region. These were equipped with a new and improved design of electrical equipment from which reduced running and maintenance costs are expected.

Progress was made on the major scheme for converting the 25 c/s system on the Southern Region suburban lines into a 50 c/s system with power drawn direct from the national grid. The first of the four MVA transformers was placed in position. Prototypes of the newly-developed truck-type high speed circuit breakers and of 33 kV switchgear were tested satisfactorily, and prototype rectifier cubicles passed for manufacture. A contract was placed for remote control equipment for substations and track-paralleling huts, embodying several novel features. By the end of the year about 40 miles of route material had been placed in position and 17 miles of cable laid, of which 15 had been jointed.

Among the locomotives built during the year were 57 diesel-electric shunting engines and 25 electric locomotives for the Manchester-Sheffield-Wath scheme. The new standard 350 h.p. diesel-electric shunting locomotive was put into service.

The main and secondary networks of telecommunications were practically completed in 1952. The experimental use of v.h.f. radio-telephone equipment in the Liverpool dock area to obtain a more economical turn round of vehicles and minimize congestion has proved very successful.

London Transport Operations

A section of the report is devoted to the operations of the London Transport Executive. It is stated that despite capital expenditure limitations and scarcity of certain raw materials the modernization of the electric power supply system is well under way. This will increase both the efficiency and reliability of the generation and distribution of electricity for the railway and trolley-bus services.

The mileage run by trolley-buses fell by 1·3 per cent during the year—from 76·2 to 75·1 million miles—but there was a greater falling-off in passenger journeys, 6·1 per cent. Because of conversion schemes the mileage run by trains fell from 19·3 million miles in 1951 to 4·3 million miles up to 5th July, 1952, when tramway operation ceased.

Car-miles run by London Transport trains fell from 225 million in 1951 (Festival of Britain year) to 215 million last year.

An analysis of costs for the various classes of transport shows that the total working expenses per car-mile was 27·14d for buses and coaches (an increase of 9·1 per cent on 1951), 28·16d (6·8 per cent increase) for trolley-buses, 35·29d (13·0 per cent increase) for trams and 20·49d (13·0 per cent increase) for railways.

Consumption of electricity in 1952 was as follows:—Railways 621 million kWh (3·10 kWh/car-mile); trolley-buses 210 million kWh (2·79 kWh/car-mile); and trams 12 million kWh (2·88 kWh/car-mile). New stock was delivered for the District, Central and Piccadilly lines; altogether 138 motor cars and 16 trailer cars were received.

Further progress was made towards the completion of the programme for converting the plant at Greenwich power station to the national standard frequency of 50 c/s and the programme for the modernization of the electrical distribution and conversion system progressed at an increased pace. The new substations will be remotely controlled.

A new signalling system for the Central and District lines was installed at Ealing Broadway.

Improvements carried out by the Docks and Inland Waterways Executive have included the installation of electric cranes at Newport, Southampton and Hull. A scheme has been approved for the change-over of the supply at King George Dock, Hull, from d.c. to a.c. and the installation of forty-five 6-ton electric quay cranes with a 70ft working radius, at a cost of £950,000.

At East Quay, Grange Dock, Grangemouth, the principal berth handling iron ore, iron and steel scrap, etc., three 10-ton electrically operated grabbing cranes with a 70ft radius are to be installed at a cost of £100,000. The pumps at the Plymouth dry dock are to be electrified.

E.I.B.A. Hants and Dorset Branch

The annual general meeting of the Hants and Dorset Branch of the E.I.B.A. will be held in the Conference Room, British Electricity House, 111, High Street, Portsmouth, on 31st July.

VIEWS on the NEWS

By REFLECTOR

DO the employees of American electrical manufacturers really think that the importation of British plant will have a serious effect upon employment? I read in the *Daily Telegraph* that 8,000 Westinghouse Electric Corporation employees were holding a demonstration to protest against orders for generating equipment being given to foreign firms. It was said that the protest was sponsored by "officials of the company." I think a more live-and-let-live attitude would be appropriate in view of the existence of the "dollar gap" which is good neither for us nor the Americans.

* * *

Fluorescent lighting can be very unflattering to the complexion and it is even complained by the Northern Council of Grocers that sausages assume an "unappetizing blue look" under the influence of the rays. According to the *Manchester Guardian*, the Council is appealing to E.L.M.A. for a lamp which will make the sausages look more attractive—a red tint is suggested. The *Manchester Guardian* is a little doubtful about this, thinking that special lighting schemes may be introduced to make things look better than they really are. For instance, green bananas could be given a ripe look, fat bacon might be made to look like lean. I hope E.L.M.A. will never be a party to such deception.

* * *

From time to time misusers of the telephone are summoned by the Postmaster-General for the "theft of electricity," although this is the smallest of their offences. Seemingly this is the only way of getting at them as the law stands. Something similar prevails in Vienna where it is apparently possible to borrow or steal a tram with impunity so long as no electricity is used. *The Times* reports that a Viennese ex-driver took away the municipality's latest tram and made a four-hour tour of the city inviting all and sundry to join him. The culprit was charged with misappropriation of electricity for which he was given three days' imprisonment. He was also ordered to pay about 10s, the cost of his trip (apparently in lost fares) to the municipality.

* * *

In a television programme last week Mr. L. G. Newman, a butterfly farmer, was interviewed by Miss Joan Gilbert. During the interview an allusion was made to the swallowtail butterfly which Mr. Newman said was found on the Norfolk Broads. It was formerly an inhabitant of Battersea Fields but apparently left that district when the power station was built. I hope that no ill-natured resident in the area will suggest that the swallowtail was driven out by the brimstone variety.

* * *

Members of the Post Office Engineering Union are aggrieved at the public's lack of appreciation of their services. One delegate at the Union's annual conference said (as reported by the *Manchester Guardian*):—

> "The public should know to what extent they rely on us for such things as 'Mrs. Dale's Diary,' 'Take It from Here' and the T.V. of the Coronation."

I view this selection with mixed feelings.

* * *

From the *Eastern Electricity Magazine* (June):—

> "A consumer wrote to one of our offices to complain about the rudeness of one of our Service Centre assistants. It appears the consumer had taken an electric kettle in for repair and, calling later to inquire about it, she said that she was told it would not be ready for some time as it had been sent to Siberia. She apparently, and quite naturally, thought this was a piece of facetiousness on the part of the employee. On being questioned, however, the employee said that what the consumer was told was that the kettle had been 'sent to Sub-Area.'"

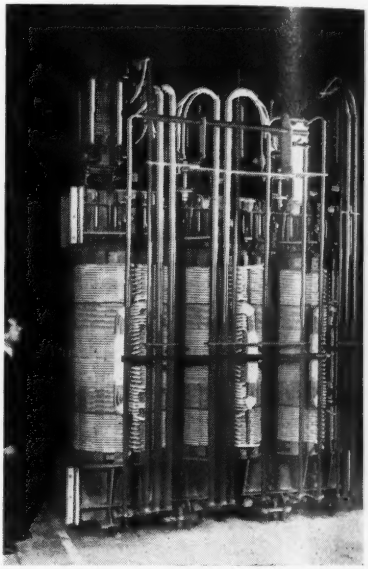
TRANSFORMER PRODUCTION

Dundee Factory Extension

THE extension now nearing completion at the works of Bonar, Long & Co., Ltd., at Dundee, will add nearly one-third more space and bring the total available production area up to 120,000 sq ft. The factory is a modern steel-framed building, and when completed will embody a main crane-served erection bay, 625ft long, with side bays for coil winding, machine shop and small-part assembly work. The factory has been laid out mainly for the production of power transformers and other ancillary equipment, and is entirely self-contained for the production of all the component parts, including tanks.

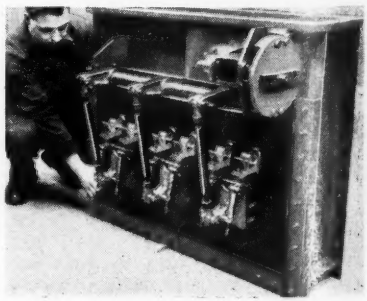
The company was established in 1936 with the object of attracting to Scotland, and to Dundee in particular (now a Government Development Area), some of the engineering industry that was mainly concentrated in the south. In those days Dundee was very largely a one-industry town, namely jute manufacture, and any recession in this industry caused acute unemployment in the district. During recent years the industry of Dundee has been to some extent diversified, and Bonar, Long & Co., Ltd., were the first to establish a new industry in the area. The first chairman of the company was the late Mr. George Bonar, a well-known textile industrialist who endowed the Dundee School of Economics, which it is now proposed to incorporate into the University of St. Andrews. In the early years the company was housed in a converted jute mill, but soon outgrew these premises, and immediately after the end of the war erected the first part of its present factory. The factory now employs about 325, all locally trained, and the new extension will provide employment for about another 100 workers. The company also provides a good training ground in Scotland for youths who wish to adopt electrical engineering as a profession.

The range of manufacture covers transformers up to 30 MVA, 132 kV, together with the associated on-load tap-changing equipment, which is manufactured under



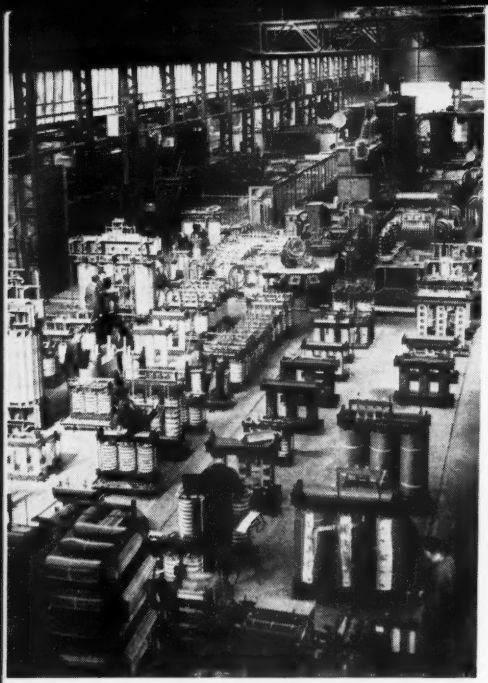
Core and windings of 10 MVA 33/6·6 kV transformers for the North of Scotland Hydro-Electric Board

Assembling contactors for a 33 kV 350 A on-load tap-changer



a B.T.H. licence. Approximately 40 per cent of the company's output is dispatched overseas, mainly to South Africa, Canada, Australia and South America; the remainder of the output is fairly equally divided between Scotland and England. When we visited the factory recently transformers under construction included several 7,500 kVA 66/11 kV units for South Africa (with series/parallel windings), 7,500 kVA and 6,000 kVA 66/11 kV forced-cooled units for Canada, a large number of 300 and 200 kVA 6·6 kV/400 V types for Australia and two 10,000 kVA 33/11 kV transformers, also with on-load tap-changing gear, for the North of Scotland Hydro-Electric Board. The orders in hand include some 30 MVA 66/22 kV transformers, with

Above: **H.v. coil-winding shop.** *Below:* **Heavy fabrication shop**



Assembly bay for medium size transformers

on-load tap-changers, for the British Electricity Authority.

Many of the special-purpose machines in the factory have been designed and manufactured by the company's own staff. These include recurrent surge oscillographs for the investigation of surge impulse voltage stresses in transformer windings, both for full and chopped wave conditions, and for the measurement of voltage stresses across coils. The new extension block will embody a greatly enlarged research department, for both electrical and mechanical development work, and facilities will be available for carrying out full-scale impulse tests by means of a 1,000 kV 17·5 kW/sec surge impulse generator now being built.

The company also manufactures heavy-duty a.c. arc welding equipment. Actually it claims to be a pioneer of this type of apparatus, and to have produced the first 600 A per operator set. Its range of equipment now extends to 1,000 A per operator.

For the class of product manufactured the management does not consider that piecework can be applied with advantage as an incentive to the increase of output. For some years the company has had in operation a successful efficiency bonus scheme under which employees can—and not infrequently do—earn up to 25 per cent more than their basic wage. The senior executives of the company participate in a profit-sharing scheme.

Damages for Electrician

AT Chester Assizes recently Mr. William Henry Yates, of Queens Ferry, claimed damages for personal injuries against his employers, Messrs. John Summers, Hawarden Bridge Steelworks.

The alleged negligence of the defendants lay in that the rubber covering of a cable had perished, permitting the bare wire to come into direct contact with a plug, thus causing an explosion in a fuse box. It was also alleged that the fuses were of insufficient rupturing capacity to deal with faults.

The defendant company, in denying liability, alleged negligence on the part of the plaintiff, inasmuch as he tested the fuses while the fuse box cover was still open.

After a hearing lasting two days, the Judge (Mr. Justice Stable) found in favour of the plaintiff, and awarded him £860 17s 9d damages. Special damages were agreed at a figure of £210 17s 9d. The Judge said he was quite satisfied that Mr. Yates was an honest man and not a malingerer. Although the actual injuries were comparatively trivial, the Judge said he had been told by doctors that there was a considerable "residue of subjective symptoms" for which there was no reason or cause, other than that which existed in the plaintiff's own mind. In his work as an electrician the plaintiff appeared to have lost his nerve, and was unable to tackle his old work and unless he squared up to the position there might be a permanent and substantial loss of earning capacity.

At the request of the defendants a stay of execution for 21 days was granted.

I.E.E. Southern Centre

THE annual golf competition arranged by the Southern Centre of the Institution of Electrical Engineers in aid of the I.E.E. Benevolent Fund, will be held on 3rd July at the Stoneham Golf Club, Southampton. Entry forms can be obtained from Mr. G. D. Arden, "Little Farne," Cliffe Road, Barton-on-Sea, Hants.

A joint district meeting with the Southern Branch of the Institution of Mechanical Engineers will be held on 25th September at the South Dorset Technical College, Weymouth, when Mr. E. A. Logan will give a paper on "Electricity in this Century."

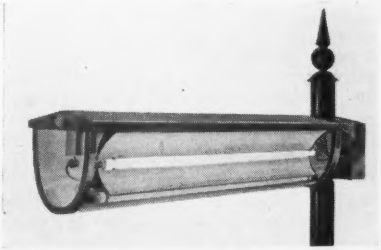
RECENT INTRODUCTIONS

Notes on New Electrical and Allied Products

Fluorescent Street Lanterns

IN collaboration with Alfred Graham & Co., Ltd., SIEMENS ELECTRIC LAMPS & SUPPLIES, LTD., 38/39, Upper Thames Street, London, E.C.4, have produced the "Capital" fluorescent street lighting lantern which is claimed to give satisfactory performance in service when mounted on constantly vibrating trolley-bus poles. The lanterns house low loss control gear in a separate box mounted at the rear of the pole. This has a "slip in" access door with a watertight gasket. The four fixing belts are fitted through saddles and then passed through to the front portion of the lanterns and the cantilever bracket. Thus the lantern is, in effect, built round the perimeter of the pole. The optical section of the lanterns will accommodate two or three 5ft "Sieray" fluorescent tubes.

The lanterns are supplied ready wired with T.R.S. flexible and erection is simply a matter of loosening the four bolts and slipping the lantern over the top of the pole. When fitted with the normal ball and spike finial the daylight appearance is excellent. The lantern can, of course, be mounted on wood or concrete poles.



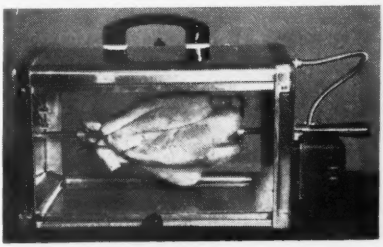
"Capital" fluorescent street lighting lantern

Dripless Pans

Complete elimination of drips from "Pyramid" aluminium ware is now claimed by HAGUE & MCKENZIE, LTD., Pyramid Works, Sloane Street, Birmingham. This has been achieved by taking a more advanced narrow-lipped rim right round the edge of the pan. However liquid is poured, either in a trickle or in a broad, fast stream, it is carried away from the side in a smooth and easily controlled flow. When the pan is tilted back to stop the pouring, the stream instantly breaks off. The last spot coming over the edge clings to the rim and slides back into the pan.

Roasting Spits

The "Beerex" portable electric roasting spit, for which A. E. WARNER (LONDON), LTD., 56, Brewer Street, London, W.1, are the sole United Kingdom concessionnaires, incorporates heat-resisting glass sides enabling the cooking to be carried out on a trolley or table in full view of hotel or restaurant customers, without fumes. Though very compact, it accommodates two birds of 2 lb each or one bird of 5–6 lb or joints of 5-6 lb. A 4½ lb joint of beef takes 30–35 minutes, mutton or pork 40–50 minutes, a



"Beerex" portable roasting spit

2¼ lb chicken 25–30 minutes. The loading is 1,400 W and the price £60.

A larger apparatus, a spit-grill-salamander, weighing 165 lb and measuring 22½in high, 31in wide and 19½in deep, takes about 20 lb of poultry. It has a loading of 4·2 kW and the price is £340.

Animated Sales Aid

Though applicable to all branches of sales business an ingenious electrically operated animated advertising device brought out by ROTOSIGNS, LTD., of 207, Victoria Street, London, S.W.1, is of especial interest to the electricity supply and contracting industries and to electrical appliance manufacturers.

Of robust construction and fool-proof in operation, the device consists of a rectangular panel which can be arranged to rotate periodically to display any kind of two-part message. For example, on one side of the panel there might be the words "Use Electricity," rotation of the panel completing the message with the

words " It's Cleaner "; similarly there might be " Electrical Repairs " on one side and " Promptly Executed " on the other. The message can be easily changed by sliding printed or hand-written messages into a channel and, if desired, actual articles can be displayed on a panel together with wording.

The standard display, which measures 8in by 12in by ½in thick, is available in three models. One is arranged for suspension. The other two, which are on pedestal or tubular frame stands, are supplied with plastic trays if required and are suitable for making complete displays. The movement is particularly mystifying, because no motor or battery is incorporated and no electrical connection is apparent. The apparatus uses only about half a crown's worth of electricity a year.

Water Heater Thermostat

Further details are now available of the " A.C.M." stem type just introduced by ROBERT MACLAREN & CO., LTD., Eglinton Works, Kilbirnie Street, Glasgow, C.5, and referred to briefly and illustrated in our description of the British Electrical Power Convention Exhibition published on 5th June.

Designed with a special view to reliability and long life, robust and simple construction, high current carrying performance and low cost, it conforms to British Standards and special attention has been paid to electrical clearances to suit Canadian and Continental requirements.

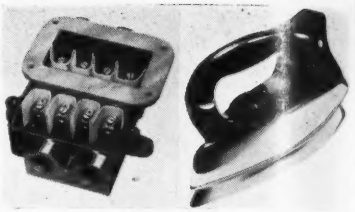
An improved micro switch incorporated comprises a slotted flat spring of beryllium copper stressed in two dimensions, a small movement at one end causing a magnified snap action at the other. The switch is non-magnetic and does not contain any coil springs, pivots or knife edges to wear out or get out of order.

A special feature of the contact system is that two breaks in series occur at the same instant. Current flows directly between the outside terminals via a copper busbar and there are no joints in the circuit except at the contacts themselves. Since there is no current flow through any part of the switch mechanism the rating of the thermostat is not limited by the heating effect of the current in the snap switch.

A porcelain foundation block forms the body of the instrument; it eliminates all small insulating pieces and greatly simplifies construction. The terminals do not project from the cover which insulates and encloses them. All parts of the instrument except the invar rod are non-ferrous. The whole assembly is enclosed in a Bakelite cover in which is a flush adjusting knob.

Flameproof Barrier Box

A flameproof barrier box for connecting conduit entering an inflammable atmosphere from a non-inflammable atmosphere or vice versa has been introduced by the GENERAL ELECTRIC CO., LTD., Magnet House, Kingsway, London, W.C.2. Fitted with four 20/25 A terminals it is suitable for use in circuits up to 660 V and has two 1in conduit outlets on both incoming and outgoing sides. It has been awarded the Buxton certificate for Groups II and III.



G.E.C. flameproof barrier box and Revo lightweight iron

Lightweight Iron

Much unnecessary effort is eliminated by the new Revo " Litomatic " iron which weighs only 3½ lb but performs its function equally well if not better than the ordinary iron weighing half as much again. The positioning of the 650 W element ensures even heating of the special alloy sole plate which heats up rapidly to the temperature selected by means of the control knob. A red pilot light indicates when the desired temperature has been reached and a thermostat maintains the heat at a constant level. The iron, which is suitable for a.c. only, is obtainable from the REVO ELECTRIC CO., LTD., Tipton, Staffs., for 44s, including 3 yd of flexible cable.

Cooker Details

The price is now announced by the REVO ELECTRIC CO., LTD., of its new " Monarch " cooker described on page 1271 of our issue of 5th June. With two 8in solid boiling plates and a grill boiler, all with three-heat switches, and a thermostatically controlled oven, the cost is £27 7s 6d. A radiant tubular type boiling plate in place of a solid plate is £1 17s extra, while " Simmerstat " control in place of a three-heat switch costs 15s 6d more. Fuses costing 9s 4d are another optional extra.

Productivity Report

THE latest team report issued by the British Productivity Council, 21, Tothill Street, London, S.W.1, deals with the production of ammunition. The report (price 5s, including postage) is largely engineering in character. Among the members of the team reporting were two Ferranti men—Mr. J. S. Ashbee, deputy chief tool and plant engineer, and Mr. H. Latham, works manager (fuze factory).

PERSONAL and SOCIAL

News of Men and Women of the Industry

THE **Duke of Edinburgh** has accepted honorary fellowship of the Institute of Welding. His Royal Highness was formally elected to this class of membership by the Council of the Institute at its meeting on 10th June.

Mr. E. T. Norris, M.I.E.E., M.I.Mech.E., Fellow A.I.E.E., has been appointed consulting engineer to Ferranti, Ltd., from 1st July. Mr. Norris has been with the company since 1920 as chief assistant designer and since 1922 as chief designer, and later chief engineer in the Transformer Department. This work has included the design of all classes of power transformers, voltage regulators, radio frequency industrial heating plant, and high voltage laboratory equipment for a million volts upwards for a.c., d.c. and surges with the associated measuring and recording apparatus. He was chairman of the Transmission Section of the Institution of Electrical Engineers in 1945-46, a member of Council from 1945 to 1948, and chairman of the North Western Centre for 1946-47. He is chairman of the Transformer Committee of the Electrical Research Association and chairman of the Transformer Group of C.I.G.R.E. and of the International Study Committee No. 12, as well as being a member of numerous E.R.A., B.S.I. and B.E.A.M.A. Committees. His travels abroad have included a lecture tour of Australia and New Zealand in 1949 and of South Africa in 1951. Mr. Norris is the author of many papers and addresses to the I.E.E. and other institutions, and he is the inventor of the moving coil voltage regulator and the astatic voltage relay.

Mr. E. T. Norris

The Minister of Fuel and Power has appointed **Sir George Paget Thomson,** F.R.S., to be chairman of the Scientific Advisory Council in succession to **Sir Alfred Egerton,** F.R.S., who retires at the end of June when his term of office expires. He has also appointed **Mr. Kenneth Gordon,** C.B.E., M.C., to be a member of the Council. Sir George Thomson has been Master of Corpus Christi College, Cambridge, and Emeritus Professor of Physics, University of London, since last year. He was previously for twenty-two years Professor of Physics at the Imperial College of Science.

Mr. John Pullein, deputy superintendent at Derby power station, retired on 20th June after thirty-five years with the Derby electricity undertaking. He received a pair of binoculars as a retirement gift, the presentation being made by Mr. W. Warren, group generation engineer, in the Power Station Institute.

Mr. G. E. Smith, M.A.(Cantab.), has been appointed contracts manager of Brush Bagnall Traction, Ltd.

Mr. F. M. Dimmock, head of the Equipment Department, Engineering Division, B.B.C., is retiring from the Corporation on 18th October next after twenty-eight years' service. **Mr. E. C. Drewe,** assistant head of the Research Department, will succeed him as from 1st October, when **Mr. A. B. Howe,** research consultant, will succeed Mr. Drewe as assistant head of the Research Department.

Mr. W. A. Ives, head of the Lighting Department of Associated Electrical Industries (India), Ltd., will be in England from early July until the end of October.

Mr. S. L. M. Barlow, Associate I.E.E., M.Am.I.E.E., the new president of the Electrical Contractors' Association, has been managing director of Barlow & Young, Ltd., since 1933. Mr. Barlow was born in 1908 at Wallington, Surrey, and was educated at Whitgift School, Croydon, and London University. He joined the E.C.A. in 1940 and was vice-chairman of the London branch in 1946 and chairman in the following year. Since 1945 he has served on the London and Home Counties Sectional Board of the Association; he was vice-chairman of the Board in 1949 and chairman in 1951. Mr. Barlow was elected to the E.C.A. Council in 1947 and has served on the Executive Committee since 1951. He

Mr. S. L. M. Barlow

became vice-president last year. Mr. Barlow represents the associates on the Council of the Institution of Electrical Engineers.

Mr. W. Lewis Smith has been elected to the board of Pirelli-General Cable Works, Ltd. Mr. Smith joined the General Electric Co., Ltd., in 1924 as personal assistant to Mr. J. Y. Fletcher, director and manager of Osram Lamp Department, and was transferred to Pirelli-General Wire and Cable Department in 1927, becoming manager of this Department and of the Wiring Sundries Department in 1938. In 1949 he was appointed manager of the Conduit Department also, and is thus responsible for the general management of these three departments of the G.E.C. Mr. Smith has represented Pirelli-General Cable Works, Ltd., on the Cable Makers' Association for many years. He has been chairman of the O.R.C.M.A. and the R.C.M.A. (affiliated Associations of the C.M.A.), and is at present vice-chairman of the C.M.A. He represents the C.M.A. on several inter-industry committees and is one of the original members of the Joint Committee for the Electrical Cable Making Industry. He is also a member of the Executive Committee and Council of the Association of Steel Conduit Manufacturers. Mr. Smith is a Liveryman of the Worshipful Company of Gold and Silver Wyre Drawers of the City of London.

Mr. W. Lewis Smith

Mr. Stanley M. Hills, A.M.I.E.E., has retired from the position of editor of *Electrical Industries* which he has held for 25 years. Mr. Hills secured the diploma in electrical engineering of the Northampton Engineering College in 1907, and was a special trainee at the works of the British Westinghouse Electric & Manufacturing Co., Ltd. (now Met-Vickers), at Trafford Park, Manchester. He served on the Students' Committee of the I.E.E., subsequently being elected chairman, and he became an associate member of the Institution in 1913. He served on the Committee of the Informal Meetings Section when it was formed and was joint author of a paper with the late Mr. J. W. Beauchamp, M.I.E.E., on "Industrial Electric Heating" read before that Section. He joined the staff of Electrical Press, Ltd., in 1924 and was appointed editor of *Electrical Industries* in 1928. For many years he edited *Electric Vehicles* and was the author of a book "Battery Electric Vehicles" (George Newnes, Ltd.).

Mr. S. M. Hills

He was for some years active in the affairs of the Junior Institution of Engineers; he served on the Council and was awarded a bronze medal for a paper on "Dielectrics and Dielectric Testing" and the Vickers gold medal for a paper on "Electric Cooking and Heating."

Mr. G. J. Corson, A.M.I.E.E., has been appointed manager, Traction Division, Crompton Parkinson, Ltd., Chelmsford, as from 1st July next, in succession to **Mr. F. H. Beasant**, who is taking up an appointment on the board of the Anti-Attrition Metal group of companies. Mr. Corson, who has been associated with electric traction for many years, received his training in the Engineering Faculty of the University of Bristol, obtaining a diploma in electrical engineering, and served a graduate apprenticeship with the British Thomson-Houston Co., Ltd., at Rugby. After a number of appointments with the B.T.H. Co., Mr. Corson served in the R.A.S.C. and R.E.M.E. during the war, reaching the rank of major. He returned to the B.T.H. Co., and since 1948 has been the traction representative at its London office, in which capacity he has been responsible for dealing with all of the B.T.H. traction activities which are handled in London and the South of England.

Mr. G. J. Corson

Mr. L. H. Pulfer has been appointed to take charge of the special lamp sales section of the British Thomson-Houston Co., Ltd., at Crown House, Aldwych, London, W.C.2, to fill the vacancy caused by the death of Mr. R. A. Deans. Mr. Pulfer has been with the B.T.H. Co. for thirty-one years and for the greater part of that time has been connected with the sale of projector and special lamps.

The results of the golf competitions held during the **British Electrical Power Convention** at Torquay were as follows:—G. P. Dennis Trophy for the Men's Stableford Competition: winner, Mr. E. J. Corbett of the North Eastern Electricity Board, with a score of 35¼ points. Runner-up, Mr. C. C. Boyse of British Insulated Callender's Construction Co., Ltd., with a score of 34¼ points. Ladies' Stableford Competition for the Lady Citrine

Rose Bowl: winner, Mrs. J. E. Belliss with a score of 41 points.

Mr. C. A. Wood has been appointed chief electrical engineer to the Staveley Iron & Chemical Co., Ltd., in succession to Mr. W. G. Turnbull, B.Sc., M.I.E.E., A.M.I.C.E., whose retirement we reported in our issue of 12th June. Mr. Wood has been with the Staveley Co. since 1920, and was appointed deputy to Mr. Turnbull in January of this year, after being electrical engineer to the Devonshire Works for over twenty years.

Barnett & Soans, Ltd., electrical engineers, Burton-on-Trent, celebrated their golden jubilee last Saturday when the directors entertained the staff and employees at Trentham Gardens, Stoke-on-Trent. The toast of the company was proposed by Mr. W. C. Caswell, and Mr. A. Gould (managing director) responded.

It is announced that **H.M. Queen Elizabeth** is to inaugurate the Owen Falls hydro-electric scheme, Uganda, in April next. The Queen will be accompanied by the Duke of Edinburgh.

Mr. J. C. Edwards, sales manager, and **Mr. E. R. Weech,** chief engineer, have been appointed directors of Bastian & Allen, Ltd. Mr. Edwards was educated at Manchester Grammar School and became a trainee with the Chloride Electrical Storage Co., Ltd. He gained further education at Manchester High School of Commerce and Manchester University. Mr. Edwards joined Bastian & Allen in 1945 and was appointed sales manager in 1947. He was previously with W. T. Glover & Co., Ltd., in the capacity of supervising engineer.

Mr. J. C. Edwards

Mr. Weech went to the United States at an early age, where he spent twelve years and received most of his training with the American General Electric Co. Switchgear and automatic controls were his main interest and he spent a year in the U.S.S.R. installing controls at the Dnieprostroy hydro-electric project. He has been with Bastian & Allen for the past eighteen years.

Mr. H. Harvey has been appointed area manager for the Liverpool, Manchester and Preston branches of the Stearn Electric Co., Ltd. He was formerly branch manager of the Preston branch.

At the recent Convention of the Association of Municipal Electricity Undertakings of Southern Africa, **Mr. J. R. Beard,** C.B.E., attended in the capacity of vice-president of the British Electrical Power Convention. In a letter to Mr. Beard on his departure from England, Mr. J. C. Frazer, M.I.Mech.E., M.I.E.E., M.(S.A.)I.E.E., expressed his appreciation of Mr. Beard's presence at the Convention and for his address at the opening ceremony. He also mentioned that literature relating to the B.E.P.C., which Mr. Beard left with him, would enable the South African Executive Council to give consideration to amending its existing constitution.

At the annual Convention of the Municipal Electricity Undertakings of Southern Africa. Left to right: Mr. J. C. Frazer, Dr. W. Nichol, Administrator of the Transvaal, who opened the Convention, and Mr. J. R. Beard

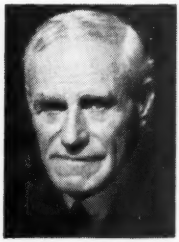
Mr. T. S. Pick, B.Sc.(Eng.), M.I.E.E., M.Inst.F., at present electrical engineer to the London Transport Executive, has been appointed chief electrical engineer. This appointment arises out of the reorganization resulting from the retirement of **Mr. P. Croom-Johnson,** the chief engineer.

Mr. C. Metcalfe, A.M.I.P.E., has been appointed managing director of E.M.I. Engineering Development, Ltd. After his engineering training Mr. Metcalfe was employed as a design engineer in the engine division of the Bristol Aeroplane Co. He joined the Gramophone Co. as an engineer in 1930, and has since been associated with companies in the E.M.I. Group. During 1935 he was appointed chief draughtsman of the design section in the production engineering division, and from 1938 has collaborated in the design of the E.M.I. Companies' domestic products. During the war years he was an executive engineer in the team responsible for the design of Government projects. Mr. Metcalfe was appointed a director of E.M.I. Engineering Development, Ltd., in 1946.

Mr. C. Metcalfe

OBITUARY

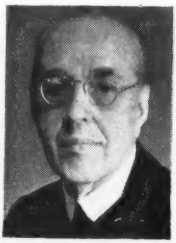
Mr. Bertram Thomas, whose death occurred on 17th June at Dunham Massey, Cheshire, was the founder and senior director of Bertram Thomas (Engineers), Ltd., Manchester. He was educated at the City of London School, Blackfriars, and at the City Guilds Pioneer Finsbury Technical College. His first employment was with Woodhouse & Rawson. He went to Manchester towards the end of the last century and engaged in contracting work. Towards the commencement of the century he added to this the manufacture of heavy switchgear, and later he originated and carried to success a third business, the manufacture of engineers' storage tiltrack gear.



The late Mr. Bertram Thomas

Mr. Thomas was a member of the Engineers' Club, Manchester, of which he was an original member and at one time president. He joined the Institution of Electrical Engineers as a student, and became an honorary life member through length of membership. He was an original Batti-Wallah.

Mr. Thomas Carter, who died on 16th June at the age of seventy-six, was consultant to A. Reyrolle & Co., Ltd. Born in Berwick-on-Tweed, he was educated at George Watson's College and at Heriot-Watt College, Edinburgh, completing his student days in Germany. He began his career with J. H. Holmes & Co., Newcastle-on-Tyne, with whom he became chief engineer before leaving to join A. Reyrolle & Co., Ltd., with whom he continued to be active in a consultative capacity until his death.



The late Mr. T. Carter

Mr. Carter was a member of the Institutions of Civil and Electrical Engineers, and a Fellow of the American Institute of Electrical Engineers. For more than fifty years he actively served the I.E.E., being at various times a member of Council, and chairman and hon. treasurer of the North-Eastern Centre. He served on numerous committees of the E.R.A., B.E.A.M.A. and B.S.I. His local interests included membership of the Electrical Advisory Committee of King's College. The funeral service was held at the Newcastle crematorium on 18th June, A. Reyrolle & Co., Ltd., being represented by Mr. C. A. Stephens, director, the President and Council of the I.E.E. by Mr. H. Leyburn, the North-Eastern Centre of the I.E.E. by Mr. A. T. Crawford, and the B.E.A.M.A. by Mr. Hudson Barnsley.

WILLS

Mr. E. B. Hall, chairman and managing director of Hall & Pickles, Ltd., who died on 11th February, left £161,218 gross (£117,375 net).

Mr. M. Gordon, for many years chairman of the Electricity Board for Northern Ireland, who died on 12th February, left estate in England valued at £39,734.

Belfast Transport Depot

A SURPLUS aircraft hangar, dismantled and re-erected on a new site, has been adapted for the Belfast Corporation Transport Department's Short Strand trolley-bus and omnibus depot which was officially opened last week by the Lord Mayor (Alderman Percival Brown, C.B.E., F.A.I.). When deliveries of new vehicles during the summer bring the depot up to its full complement of 100 motor-buses and 80 trolley-buses the last of the city's tram services, except those for Queen's Road, will close down.

Vehicles are parked in the open, the hangar being used for maintenance and repair work, stores, etc. Eighteen pits are disposed herring-bone fashion on either side of the central through gangway to facilitate rapid handling of vehicles. The pit edges are reinforced with second-hand tramcar rails in the sides of which are housed the fluorescent pit lighting fittings. Each pit has compressed air supply points for air tools and low voltage supply points for electric handlamps. Pits are interconnected laterally for safety in the event of fire or accident. Within the hangar there also are a two-storey workshop, stores, offices, and canteen, a separate electrical shop, a tool store, a degreasing room, and a low pressure air compressor room. Illumination of 5 ft-candles is available at the hangar floor level and 12·5 ft-candles at the benches. The pits are lighted with special fittings designed in the Transport Department to give comfortable working beneath vehicles in what could be otherwise disagreeable conditions. The electricity supply for the depot is obtained from the Transport Department's substation at the south-west corner of the yard. Outside the hangar at the east end is the boiler house accommodating oil-fired boilers for the low-temperature floor heating system. Along the parking lines are placed bollards with 60 V circuits for the connection of 720 W immersion heaters installed in the radiator tanks to prevent freezing.

Contractors at Bournemouth

The E.C.A.'s Eighteenth Conference

AMPLE proof of the continued progress and strength of the Electrical Contractors' Association was again provided at the annual conference of the Association and its allied organizations (the National Federated Electrical Association and N.E.C.T.A., Ltd.) held at Bournemouth on Monday, Tuesday and Wednesday of this week. Something like 650 members and guests attended this year's conference in weather which was mixed but tolerable.

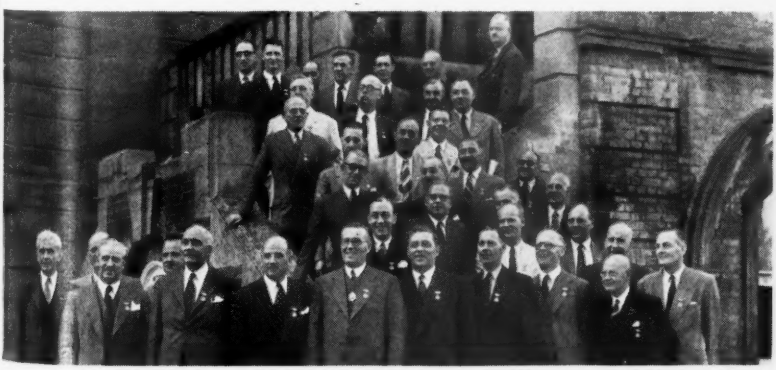
As usual the proceedings began on Monday with the registration "ceremony" and many familiar faces were seen at the Royal Bath Hotel as the delegates "signed on" in a constant stream.

The President for 1952–53 was Mr. W. T. Trace of Birkenhead who, with Mrs. Trace, held a reception at the Pavilion on Monday evening when the Mayor of Bournemouth Councillor H. P. E. Mears, O.B.E.) and the Mayoress were present. Afterwards there was dancing to music provided by Syd Fay's orchestra and during an interval a "mind reading" act provided some amusement.

The first business session took place at the Town Hall on the following morning when the President introduced the Mayor who welcomed the Association to the town. His Worship expressed the hope that the delegates would not have their noses to the grindstone all the time but take the opportunity of seeing some of the beauties of Bournemouth.

In the course of his presidential address, summarized below, Mr. Trace made a survey of the various problems with which electrical contractors were faced, among them being purchase tax, the competition of the Electricity Boards, the granting of discounts to people outside the electrical industry, relations with the Electrical Trades Union and the question of compulsory registration of contractors and operatives. The President finished in an optimistic vein—quite justifiable having regard to the Association's past development.

After a short interval for coffee the President called upon Mr. J. Mortimer Hawkins to present his paper on "Some Commercial Aspects of Electrical Contracting and Retailing." This and the ensuing discussion are dealt with later. Mr. Trace said that Mr. Hawkins was an active member of the Association's London



The Council of the Electrical Contractors' Association

The President opening the Conference at the Town Hall

Branch and was known for his very outspoken views.

There was no afternoon session on Tuesday. In the programme suggestions were made for excursions to Christchurch, the New Forest, Poole, Wimborne, the Isle of Wight and other places accessible from Bournemouth.

In the evening the delegates were received at the Pavilion by the Mayor and Mayoress. Afterwards there was dancing and a cabaret show.

On Wednesday morning the annual general meeting took place at the Town Hall and at the conclusion of this Mr. Trace handed over the presidency to Mr. S. L. M. Barlow, a brief biography of whom appears in our "Personal and Social" section. Mr. Barlow made a short acknowledgment of the honour which the Association had conferred upon him.

The paper by Mr. W. H. Smith, O.B.E., on "Electronics and Contracting," which is summarized on page 1478, was presented by the author, who staged a demonstration and exhibited a film, at the Wednesday afternoon session. A report of the discussion on this paper will be given in next week's issue.

The conference concluded on Wednesday evening with a smoking concert, followed by dancing, at the Pavilion. Once again the undoubted success of the conference reflected great credit upon Mr. L. C. Penwill and his staff, as well as Mr. Norman Aish and his band of local stewards.

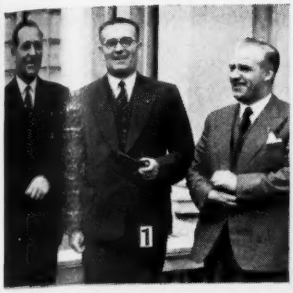
Presidential Address

By W. T. TRACE

MR. TRACE prefaced his address, delivered on Tuesday morning, with a brief review of events during the past year, culminating in the Coronation, and called upon members to enter the new era conscious of the lessons taught by history and with a determination to foster the spirit of individuality which had been long suppressed.

Referring to taxation, the President welcomed the reliefs introduced by the Chancellor of the Exchequer but said that the reduction in purchase tax, although the right thing, should be but a prelude to its abolition. When purchase tax was reduced or abolished the retailer was unable to recover amounts he had already paid. It would be a simple matter to credit these amounts to the retailer for a fixed period before the Budget. Sales of taxed articles always slackened off some time before Budget day and following this year's events one could imagine the drop in sales likely to occur in the early part of 1954. Retailers would be forced to reduce their stocks, with adverse effects upon the manufacturers' production and distribution plans.

During the past year certain meetings of a somewhat contentious character had been held with the British Electricity Authority and the general relationship



(1) The Director (Mr. L. C. Penwill, C.B.E.) with the President (Mr. W. T. Trace) and Past-President Mr. S. Dickinson. (2) Messrs. T. K. Richardson and A. V. Milton. (3) Messrs. E. J. Vidler and J. H. Cosens. (4) Messrs. V. Ferens and C. R. Bates. (5) Mr. and Mrs. H. S. Wathes. (6) Mr. and Mrs. T. W. Heather. (7) Mrs. F. A. Smith, Mr. and Mrs. J. Smellie and Mr. R. A. Smith. (8) Messrs. W. J. Jones, A. H. Adey, H. Beesley and E. B. Sawyer. (9) Mr. J. C. Verdie and Mrs. M. Verdie. (10) Messrs. L. C. Penwill and N. Aish. (11) Messrs. W. J. Bird, F. Winstanley and Ivor Williams

between that body and the E.C.A. was not so satisfactory as they could wish. He sincerely hoped, however, that as the result of negotiations which were proceeding understandings would be reached.

They were seriously concerned at the loss by the electrical contractor and retailer of the sale of electrical merchandise on hire-purchase terms. The Electricity Boards were able to offer terms with which the private trader could not possibly compete. Gradually and surely the Boards were securing a monopoly of this business. Moreover, certain Boards were offering goods at less than the manufacturers' list prices in their anxiety to liquidate excess purchases. These activities were regarded with some concern.

The Co-operation Committees consisting of Electricity Board and Association representatives throughout the country had continued to operate and happy relationships had ensued in many instances. They all wished to secure the fullest co-operation to advance the main task of the industry—the sale of electricity and electrical appliances.

Good results had been obtained in negotiations on matters relating to the contractual relationship between the B.E.A. and the electrical contractors. A Technical Committee, at national level, had also been inaugurated.

He hoped that careful consideration would be given to the recommendations of the American team which had reported on the British electricity supply system. These included the establishment of uniform rates in all fourteen Areas; that wiring contracts should be left to the private contractors and a standard wiring code developed; that steps should be taken to install meters on the outside of new houses and meters in old houses should be repositioned; and that more funds and materials should be allocated for rural development.

On the subject of the relationship between contractors and retailers on the one hand and manufacturers and wholesalers on the other, Mr. Trace drew attention to the continued granting of "traditional" discounts (sanctioned by the Fair Trading Policy) to substantial industrial buyers of electrical goods and to smaller concerns whose purchases appeared to justify some recognition by way of discount. He contended that the number of people quite unconnected with the electrical industry now receiving discounts equal to those granted to the electrical contractor and trader made a farce of the term "trade discount." He commended the continuous effort of the Fair Trading Council to achieve progress in this and so many other directions, but could only conclude that partisan interests had been able to prevent progress.

It was the aim of the Fair Trading Council to secure a fair reward to those carrying out defined and understood functions, but Mr. Trace wondered whether any serious attempt was being made to ensure that the function of each section of the industry was being defined and understood. The time was overdue for some really spectacular review of the trading structure of the electrical industry.

Turning to labour relations, the President said it was neither the time nor place to discuss whether negotiations between employers' organizations and trade unions should be governed by political considerations or whether such negotiations should be solely concerned with the prosperity of the industry and the economy and efficiency of its service. It was doubtful if, in the country's present condition, we could afford the luxury of a 44-hour working week, let alone the 40-hour week which was envisaged.

Our goal should be to increase the buying power of wages rather than inflate the wage packet in a chase after rising costs. If output per man-hour were increased by 10 per cent the country's economic problems would largely be ended. It should not be impossible for the industry to solve the problem of increasing output per man-hour and he urged the National Federated Electrical Association in its negotiations with the Electrical Trades Union to set an example in this direction to industry as a whole. At present the Association had under consideration applications from the E.T.U. for improved working conditions—which were regarded by the Union mainly in terms of extra payments. This "yardstick" of improvement was not shared by the N.F.E.A., which maintained that only increased productivity would bring prosperity and its accompanying rewards for services rendered.

(1) The President and Mrs. Trace greeting Mr. and Mrs. C. A. J. Bartley; the Mayor and Mayoress are on the right. (2) Mr. S. L. M. Barlow (the new President) with his wife and daughter. (3) Mr. G. Wilson with Mr. and Mrs. A. O. Bruty. (4) Messrs. S. Dickinson and T. E. Alger with Mr. and Mrs. P. G. Wallis. (5) Mr. and Mrs. W. A. Skyrme and Mr. and Mrs. T. J. Phillips. (6) Mr. and Mrs. H. Drake on the dance floor. (7) Messrs. E. Simpson, A. V. Milton and T. R. Jones. (8) Mr. and Mrs. E. A. V. Peckham. (9) Messrs. E. J. Vidler, W. H. Copper and V. J. Stock. (10) Mr. and Mrs. H. F. Paramor and Mr. G. R. Chard. (11) Messrs. J. R. Halliwell and R. A. Marryat

He did not agree with the opinion of some that it was impossible to achieve compulsory registration of the electrical contractor and operative. If in the public interest compulsory registration was desirable it could be achieved. All interests in the electrical contracting industry were satisfied that only a scheme containing some element of statutory control could be effective.

Mr. Trace referred to the honour conferred upon the Association by the selection of Mr. Drake, a past-president, as president of the Electrical Industries Benevolent Association. There had been a good response by the members to special appeals made by Mr. Drake and himself for subscriptions or increased subscriptions to the E.I.B.A. and in May he (Mr. Trace) had the privilege of handing over to the E.I.B.A. the bungalow which the E.C.A. had built at Broome Park in Surrey.

The President assured the members and the industry at large of the good health and spirits of the E.C.A. and its allied associations. The industry was to-day more competitive than at any time during the past twenty years. Longer credit facilities had to be extended to customers and the financing of purchase tax was a serious burden. Nevertheless, the Association continued to face its responsibility as part and parcel of the electrical industry and it extended the hand of co-operation to all other sections, believing that by this means even the most difficult problems facing the industry could be solved to the mutual benefit of all.

In conclusion Mr. Trace thanked for their assistance the vice-presidents, Messrs. S. L. M. Barlow, J. R. Halliwell and A. F. Plummer, the chairman of the Executive Committee, Mr. M. R. H. Sadler, and the director, Mr. L. C. Penwill, and his staff.

Commercial Aspects

By
J. MORTIMER HAWKINS

PRESENTING his paper on "Some Commercial Aspects of Electrical Contracting and Retailing," Mr. J. Mortimer Hawkins, chairman and managing director of Mortimer, Gall & Co., Ltd., said that all members of their industry had at least one thing in common —customers or clients on the one hand, manufacturers or suppliers on the other. More than ever before the electrical contractors' status depended on their justification of the claims they made for themselves.

Since 1938 relationships with both clients and suppliers had been quite artificial, conditioned largely by a national emergency, priorities, super-priorities and shortages, not to mention labour difficulties. Nobody under thirty-five knew very much about competitive selling and buying as it existed before the war. This meant that vital elements in commercial life had got to be taught anew and many of them must re-learn what they had tended to forget.

It was high time they tried to reorientate themselves and surrendered moral ascendancy to their clients while claiming it over their suppliers. It was important that each party interested in an installation—the client, the contractor, the Area Board and the manufacturer or wholesaler—should keep to his proper function, for otherwise the object of their creation might suffer.

Theirs was an industry in which their clients were unable to use much judgment for themselves and must rely on the advice given by such experts as he imagined they would claim to be. The opening stages of almost every job involved discussions with the Electricity Board. Except where consulting engineers were employed, these discussions gave contractors an opportunity to interpose themselves between their clients and the Board. Their role was to give informed help to both parties. Mr. Hawkins quoted examples of the way in which a contractor could save his client unnecessary expense when dealing with an Electricity Board and even save the Board from spending more than it need do. He

Speakers on Mr. Hawkins' paper: (1) Mr. H. Drake. (2) Mr. T. W. Heather. (3) Mr. M. E. Broadbent. (4) Mr. F. H. Evans. (5) Mr. A. Webb. (6) Mr. G. F. Gray. (7) Mr. S. L. M. Barlow. (8) Mr. G. W. Hands

submitted that the nationalized electrical industry would be unable to deny a place in the sun to private enterprise contractors providing they were enterprising in an objective way.

Manufacturers and wholesalers should be pressed very hard and quite relentlessly to state without equivocation whom they regarded as their customer, the contractor or the user. He thought that the qualifications required from "Recognized Users" for any discount privileges should be made more substantial and in line with the highly electrified state of business to-day compared with that which existed when the present qualification was laid down.

It was not unreasonable that people who wished to apply for trade discount privileges should be required to give documented details over the signature of a responsible person no less substantial than the company secretary, for submission to the Fair Trading Council. This body in turn could issue, in appropriate cases, a numbered certificate showing the discount entitlement and the classes of equipment covered. Firms which were not bona fide contractors would then need to quote that certificate number to prove their entitlement to discounts.

Mr. Hawkins said that he was most anxious to see contractors become more self-sufficient, either individually or collectively, and he was sure they could and must find better ways of using their individual enterprise and skill to give the customer the service he had a right to expect. He suggested that, say, four or six like-minded contractors in a given area should get together with the object of carrying out "combined operations" for the express purpose of giving better service and not primarily as a financial enterprise. This arrangement would enable a 24-hour service to be given without undue strain on any one business. Furthermore, individual firms, operating maybe under an "umbrella" title, would be able to specialize in those activities best suited to their business and personnel. Also staff training and organization, methods development and apprentice training would be facilitated. A final advantage was the probable greater security in connection with the effect of estate duty, so penal on family businesses.

Giving attention to the retailing side, Mr. Hawkins emphasized that the good retailer sold warmth first, and supplied fires, convectors or fan heaters as the circumstances demanded; he sold hot water, not electric heaters; he sold light, not fluorescent fittings. If their shops and showrooms and display windows could be arranged with that in view, he was sure that their customers would be more ready to buy.

DISCUSSION

Mr. H. Drake, who was the first speaker in the discussion, said that on first reading the paper he was disappointed to find that the author thought it necessary to draw attention to the true function of the contractor, as an intermediary between the consumer and the supply authority. The grouping which Mr. Hawkins suggested

was not easy for many reasons, mainly financial. He did not think that it could be achieved without a financial "tie-up." A 24-hour service was not only desirable but essential. The Fair Trading Policy was not perfect but it had worked fairly well.

Mr. T. W. Heather remarked that there were two reasons for the granting of discounts. The first was a recognition of the performance of a useful function in the industry and the second was that a large buyer was entitled to discount because of the economic effects of his purchases upon the industry. Certificates of qualification for discounts issued by the Fair Trading Council were not practicable. The electrical industry was a composite one in which uniformity of practice was impossible. The F.T.C. was formed to establish *principles* and and they should not go back on that.

Mr. M. E. Broadbent said that if the industry acted on the principles of the Fair Trading Policy it could not go wrong. He attributed most of the troubles to greed on the part of some manufacturers, wholesalers and large contractors. To give proper service the electrical contractor must be properly equipped but he should not be so big as to be unable to give a personal service. The speaker considered that quantity discounts were justifiable but that "status" discounts were wrong.

Mr. F. H. Evans objected to the terms "trade user" and "large user" because while these people were supposed to have an adequate electrical staff such staffs were sometimes of a doubtful character.

Mr. A. Webb averred that "old stagers" knew that the contracting activities of the Electricity Boards were a waste of public money. He also considered that the conception of "recognized users" was ridiculous. Certificates of entitlement to discount which did not impose definite penalties for breach of the terms were useless. He saw only one solution—the complete withdrawal of the "recognized user" category.

Mr. G. F. Gray spoke of the serious effects upon the business of electrical contractors of the granting of trade discounts to large industrial concerns.

Mr. S. L. M. Barlow said that he seldom agreed with the author but he endorsed his views upon the functions of the contractor. He asked, however, for evolution not revolution in bringing about desirable changes.

Mr. G. W. Hands considered that the Fair Trading Policy was doomed. He urged contractors vigorously to contest the nationalized industry's incursions into their field. As a retailer he felt that the trade discount was not big enough. The announcement regarding rural development made last week by the Minister of Fuel and Power should open up great opportunities for electrical contractors in rural areas but he warned members that advertising by the Electricity Boards would raise severe competition. He welcomed the official statement that the Government's views on the Hutton purchase-tax report were to be reconsidered with a view to helping traders.

Replying to the points raised, the author asked why Mr. Heather thought that certificates of qualification for discount were impracticable. Was it because there were so many people to be considered or because of difficulty in formalizing discounts? He said that E.L.M.A. had shown that it was not impossible. Contractors' selling efforts were negatived by the granting of "large user" discounts. Industrial concerns might employ three electricians and their mates but what other work did these men do? He was in favour of the gradual withdrawal of the "recognized user" discount—not immediate abolition. It was a wrong approach to advocate working against the Electricity Boards. The contractors' role was to give informed help to both Boards and consumers.

Electronics and Contracting

By W. H. SMITH

SPEAKING on the subject of "Electronics and Contracting," Mr. W. H. Smith, O.B.E., managing director, W. H. Smith & Co. (Electrical Engineers), Ltd., said that when there was a new industry such as electronics striving to establish contact with the public it would seem that contractors, particularly those carrying out work of an industrial character, had an opportunity to add a lucrative sideline to their business, forestall a competitor,

and prevent the history of the radio and television industries being repeated.

Generally speaking, electronic equipment was not sold in quantity to individuals and each sale involved at this stage of development some technical discussion with prospective customers, who were usually sceptical, if not openly suspicious, of advertising and literature on the subject. Therefore personal approach was essential, and of necessity a protracted and often expensive business.

Mr. W. B. Smith

It was unfortunate that indiscriminate publicity by a small section of the electronic industry created an impression, immediately after the war, that electronics were to be the end of all industrial control problems and in certain cases, with more enthusiasm than judgment, firms undertook the solution of problems, which in the light of development had better been left alone. Their efforts had left behind a stigma of unreliability which would need much removing.

It would take some time for manufacturers to establish a sales force capable of handling their economic production rate, if indeed the value of individual units would ever justify such an endeavour. Meanwhile there was a growing demand for the products and it would seem certain that contractors were in an ideal position to introduce the producer to the consumer, or better still to act as contractors for the supply and installation of the electronic and associated mechanical equipment.

Competition which was already evident in sales activities would shortly cause manufacturers to consider cost and quality far more carefully than had been the case in recent years, and there was no doubt that there were many instances where correct application of electronic devices could assist to this end. Contractors could do much to dispel an impression in the minds of a few that electronic equipment was unreliable, by making it known that the basic components were all manufactured by firms of repute to close limits and had a known life when correctly applied.

The cost of electronic equipment was usually quite small in relation to the production plant used by the customer, and at this early stage in the life of the industry, all concerned should encourage purchase of equipment from firms of repute. Service of electronic equipment should be preventive in character, comprising periodic routine inspection, cleaning and performance checks, with particular regard to the remaining life of valves. Failure of the equipment was usually due to simple causes, often obvious from a visual examination, but replacement of defective components should not be made until the reason for failure was known. Maintenance could not become a very profitable business, but careful selection of employees for this duty could lead to the fostering and development of goodwill.

Among the many applications of electronics were high-frequency induction and dielectric heating, motor speed control, voltage regulation, position control, magnetic sorting, vibration indication, study of reciprocating and rotary motions by means of stroboscopes, metal detection, gauging (thickness, roughness, etc.), temperature control, relay operation by means of photo-electric cells, counting, time measurement and acoustic control.

This new field of electrical development, electronics, belonged to the young man. Any firm providing opportunity for the right person, approaching the end of his apprenticeship, to acquire basic training in electronic subjects would have the nucleus of a future department which should add to the member's prestige and show in time an ample reward.

Cross-Channel Power

SUBMARINE cable-laying trials will be carried out this summer off the south coast near Dover in connection with the proposed project for the cross-channel interchange of electricity. The Post Office cable-laying ship *Alert* will lay two half-mile lengths of cable of British manufacture; these will be jointed at sea to a 300 yd length of cable which French manufacturers will provide. After certain electrical tests, the cables, joints, etc., will be recovered and returned to works for tests to demonstrate whether and to what extent damage has occurred during the laying operations. The whole of these tests are expected to be completed early in 1954 and will prepare the way for the submission of a report on the main project.

Industry and the House

Rural Electrification Debate

By A. M. F. PALMER, A.M.I.E.E., M.P.

THE 1953 British Electrical Power Convention was still at Torquay on the day that Parliament met again at Westminster. After four days at work M.P.s gave the following Monday, 15th June, to the seaborne glories and pleasures of the Spithead Naval Review. Yet twice in this short and interrupted time the House of Commons has debated rural electrification.

Perhaps in some telepathic-electronic way the pent-up forces of electricity concentrated beside the summer sea imprinted their burning sense of urgency on the minds of the legislators beside the silver Thames. A fanciful explanation, no doubt, but it is hard to think of a better.

First of its Kind

As Mr. Geoffrey Lloyd, the Minister of Fuel and Power pointed out, the second and main debate, which lasted the whole of last Friday, was the first of its kind in the history of Parliament. It began on a Private Member's motion moved by Mr. Hurd and seconded by Mr. Deedes; both are Members who represent south country agricultural constituencies.

The motion, after noting the benefits to rural life that spring from electricity and its value in advancing productivity on the land, urged "that steps should be taken to develop the supply of electricity in rural areas as much and as fast as possible."

In his opening speech Mr. Hurd argued that faster rural electrification, in view of the need to increase the output of the nation's land by 1956 to 60 per cent over pre-war, was not "sentiment" or "philanthropy," but "hard business." He made the important human point as well that electricity was required in the countryside to make homes "women-worthy" or else the still continuing drift of agricultural workers and their families to the brighter lights and easier living conditions of the towns would go unchecked.

Mr. Deedes took up the justified complaint of the electricity supply industry that it had become a post-war habit to persuade the people to believe that electricity was a luxury in which it was unpatriotic to indulge. He put again a question which many have asked the Government both inside and outside Parliament in the last few months: could the Electricity Boards now resume so-called "promotional activities" and could all appliances be bought without personal reproach or restraint by those who had electricity?

Pre-War Comparison

On the whole the debate was of a non-party or cross-bench character except for a marked difference between Conservative and Labour Members in their approach to the achievements or otherwise of the nationalized industry since vesting day five years ago. The figures of new farm connections cannot of course be in dispute: between 1920–1948 the average number of farms connected each year was 2,900; since nationalization this number has shot up to a yearly average of 9,500. Nobody suggested this was still anything like sufficient in relation to the crying needs of the times, but Mr. George Brown, former Parliamentary Secretary to the Ministry of Agriculture, for instance, did not hesitate to give the lion's share of the credit for the admitted improvement to nationalization. So vigorous was his advocacy that the Minister felt obliged when he spoke to come to the aid of the maligned former electricity companies.

In a voice that contained anger and sorrow in nicely balanced quantities, Mr. Lloyd suggested that since the Conservative Party had accepted nationalization of electricity supply without reservation of any kind, it would be pleasant if on occasion the Labour Party and its spokesmen expressed some "reciprocating sentiments" towards private enterprise. The old companies had

carried out much "pioneering work" in the field of rural electrification. When Area Boards were doing exceptionally well it was often because they had inherited a tradition of efficiency and drive from their private predecessors. Mr. Brown was not visibly chastened: in an intervention he blithely accused the Minister of rather "letting himself go."

But if Mr. Brown was provocative, the other Labour front bench speaker, Mr. Noel-Baker, was the essence of statesmanship. His only expedition into the mildly polemical was to suggest that Mr. Lloyd could now do what he as the former Minister could not do at the time: remove all limit on investment for rural electrification.

While Mr. Lloyd is not prepared to act quite according to that free and easy slogan, he has at least promised an extra £1,500,000 for rural electrification over the next eighteen months. Also the electricity supply industry is now at liberty again to "cry its wares." This latter news certainly quickened the hearts of many who like the writer have been urging it for a long time on the powers that be.

I did mention that there had been another debate on rural electrification. This was on the previous Friday when Mr. Nabarro had the adjournment. He had to contend not so much with the complexities of the subject as with the rulings of the chair. To tell the truth Mr. Deputy Speaker seemed to be rather of the opinion that Mr. Nabarro should not be talking at all with a motion on his subject outstanding on the Order Paper.

We have often felt a little uncharitable towards Mr. Nabarro in these columns because of his advocacy of barbarous devices such as solid fuel as a contribution towards a national fuel and power policy. Let him however be praised on this occasion: he ended his speech unruffled and in good order.

PARLIAMENTARY NEWS

By Our Special Reporter

IN the House of Commons last Friday Mr. Hurd moved that the House, "noting the benefits already brought to many villages and farms by main electricity, believes that the development of food production depends increasingly on the use of electric power in labour-saving farm equipment and convenient household amenities for those on the land, and urges that steps should be taken to develop the supply of electricity in rural areas as much and as fast as possible." He said that agriculture had been losing 10,000 regular workers annually for the last four years. Electricity in the home, and water on tap, were just as potent considerations as another wages award.

To-day 40 per cent of farms were connected to the electricity supply mains. At the present rate of progress it would take another 20 years to provide all farms with electricity. Progress must be faster. Area Boards should take a longer view of the income to be derived from rural consumers. There must be a reversal of the policy of restrictions on the sale of electricity and limiting the equipment. The B.E.A., acting for the general body of consumers, should take responsibility for transmission lines down to 33 kV.

Mr. Deedes, who seconded, urged the Government to say whether the Boards could now resume advertising and promotional activities, and whether all appliances could be bought without reproach or restraint by those who had electricity. If the answer was in the affirmative, we should be half-way towards solving the problem of the accelerated supply of rural electricity.

Mr. George Brown paid a warm tribute to the B.E.A., declaring that it had done a good job for electricity supplies for agriculture, and had given a degree of attention that the private companies could not do. The Government should pay the cost of carrying electricity supplies to the "fringe" agricultural areas.

Mr. Leslie Thomas urged that within the flow of investments there should be a specific and annually increasing allotment for bringing electricity to the farms.

Mr. Palmer believed that electricity would be the natural medium for distributing the resources of atomic power. He argued that resources should be concentrated on development of the electricity supply system instead of "playing about" with solid fuel and other methods of carrying out domestic tasks.

Mr. Noel-Baker said that, unless it was absolutely necessary, the use of electricity at

peak hours should still be discouraged. Unless the load was spread over more hours power stations would be unable to give the electricity required by increased production.

Replying to the debate Mr. Geoffrey Lloyd, the Minister of Fuel and Power, said that conditions varied in different parts of the country. There were some areas where people actually believed in the capital contribution in respect of connection charges. The time had come when this should be reviewed, and he proposed to ask the B.E.A. and the Boards to survey the various methods of contribution used, to see which they thought were the best. In particular, it would be useful if the Boards would be prepared to offer, where wanted, any variation used in other parts of the country.

The last Government had kept a heavy hand on capital available for rural electrification. One of the first acts of the present Government had been to make an increased allocation of £1 million for 1952 for this purpose. This year the limit was £6 million and for next year it was provisionally arranged to be £6,500,000. Those two latter figures were in substance the total of all the amounts asked for by the Area Boards. They had not been cut either by the B.E.A. or by the Government, and hence the industry for the first time was free to develop the countryman's electricity.

The Area Boards had lived so long in an atmosphere of rigid capital limitation that they needed more than freedom—they needed encouragement. He assured them that they were going to get it from this Government. A further increase was to be made in capital approved for rural electrification of £1,500,000 over the next eighteen months, which would bring the figure to about £7,500,000 for the next year, compared with the figure of £3 million inherited by the present Government.

Mr. Lloyd went on to say that the financial problems arising out of the relatively small number of connections and the very small revenue from rural electrification could be eased by increasing, if possible, the number of consumers. The last Government put a ban on promotional advertising when power cuts were general. The Boards had been asked to do a man-sized job in rural electrification with their hands tied behind their backs. The present Government had decided to remove the ban on promotional advertising, and to place on the industry the responsibility for such advertising. In rural electrification promotional advertising was an essential factor, and the Area Boards must emulate the drives of this kind which were carried on so successfully before the war by private enterprise companies.

On behalf of the Government Mr. Lloyd welcomed the motion, which was agreed to.

Finance Bill

During the Committee stage of the Finance Bill in the House of Commons last week Mr. Crosland unsuccessfully moved an amendment to grant an initial allowance of 100 per cent, instead of 40 per cent, on certain types of fuel-saving equipment.

Mr. Butler, the Chancellor of the Exchequer, said that although this plant was important, he was not satisfied that a 100 per cent allowance was the best way to deal with it. Little of the existing £1,000,000 loan had been taken up. It had been decided that some modification should be made immediately in the method of allotting loans for this purpose. The categories of equipment eligible for assistance would be extended. The period during which the loans were repayable would be increased up to a maximum of 20 years. The loans would be made interest free for the first two years. That should allow ample time for the equipment to be fully tried out to prove its worth. A leaflet giving the full details would be available soon from the Ministry of Fuel and Power.

Highland Railway Electrification

Lord Malcolm Douglas-Hamilton asked the Secretary of State for Scotland whether his attention had been drawn to the recent resolution of the Inverness County Council concerning the electrification of Highland railways, which had been sent to him; and whether he would initiate a conference between the North of Scotland Hydro-Electric Board and the Railway Executive to explore this question.

Mr. Henderson Stewart said that the resolution had not been sent to the Secretary of State. The County Council was in touch with the North of Scotland Hydro-Electric Board and with the Railway Executive.

Supplies to Scottish Farms

Mr. McNair Snadden told Maj. Anstruther-Gray that according to figures provided by the South East Scotland Electricity Board, approximately 25 per cent of the farms in the Board's Southern Area had an electricity supply at 31st March, 1953: the comparable figure for the rest of the area at that date was 44 per cent.

Back-Pressure Potentialities

On Monday Mr. Gerald Nabarro asked the Minister of Fuel and Power (Mr. Geoffrey Lloyd) to state the arrangements in hand for surveying the potentialities for back-pressure generation: the number of firms in the United Kingdom to be approached for details of power and process and heating steam consumption and the minimum coal consumption of such firms to qualify for inclusion in the survey; how long the survey would take; and in what form the results would be published.

The Minister replied: "Because very valuable fuel savings can be made by passing steam through engines or turbines before using it for heating purposes, I have decided to make a survey of the potentialities for generating power in this way. Approximately 3,0[illegible] industrial

undertakings each consuming over 2,000 tons of coal per annum, and also certain other large establishments, will later this week be asked for the necessary information. I hope that everybody concerned will co-operate to make provisional figures available to the Ministry as soon as possible, and that the final results will be published in the Ministry's Statistical Digest for 1953."

The questionnaire relates to: the amount of fuel used each year for (a) stationary steam boilers, (b) hot water boilers and (c) other purposes; kW and kWh purchased; types of engines and exhausts and of boilers, their ratings and ages; production of electricity or mechanical energy each year; total yearly steam production; quantity and pressure of live steam used for processes and space heating; reasons for not using back-pressure plant where applicable.

Fuel Advisory Services

The Minister of Fuel and Power stated that the Committee set up under the chairmanship of Sir Harry Pilkington to work out a scheme for increased fuel efficiency advisory services in industry recently made its report, which had been accepted in principle by the Government.

An independent non-profit-making company, limited by guarantee, not having share capital, would be set up by the British Productivity Council, which would appoint the governing body. The company would take over and expand as rapidly as possible the Ministry's existing industrial advisory services and would be staffed at the outset by technical staff from the Ministry and other qualified persons. It would collaborate with and, where desirable, work through bodies promoting fuel efficiency. An official of the Ministry, acting as assessor, would maintain contact with the Government.

The Chancellor of the Exchequer had informed the House on 16th June how the Government proposed to modify the existing loan scheme to encourage installation of fuel saving equipment in line with the Pilkington Committee's recommendations. The initial income of the company, guaranteed for five years, would be £450,000, derived from annual contributions of £250,000 from the National Coal Board and £100,000 each from the British Electricity Authority and the Gas Council.

Welsh Power Station

Mr. Palmer asked the Minister of Fuel and Power why he had refused to give his consent to the building of a new power station by the British Electricity Authority at Machen, Mon.

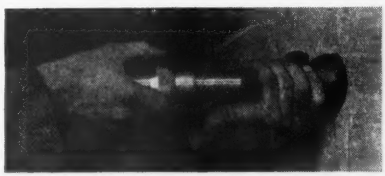
Mr. Geoffrey Lloyd replied that after full consideration of all relevant facts, and in particular the evidence given at the public inquiry, he considered the disadvantages would outweigh the advantages.

Portable Percussion Tool

WHILE there is nothing electrical in the design and operation of the "Supa Dynamic" portable power tool recently introduced to the market by F. H. Bourner & Co. (Engineers), Ltd., we feel that it is likely to find particular service in the electrical field for such duties as fixing conduit and cable clips, saddles, switches, fuses and junction boxes, etc., to very hard materials like brick, concrete and steel.

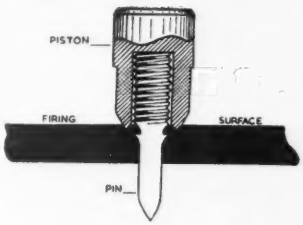
The tool operates on the percussion principle, the "blow" being effected by explosive in much the same manner as the firing of a rifle. The propellant is a 0·22 blank cartridge which is available in five strengths to give a measure of control of the degree of penetration of the varying lengths of power pins into materials of differing hardnesses. Special precautions are taken to make the tool safe and foolproof in view of the use of explosive, and the cartridge is actually fired by push-button operated mechanism.

The single-blow "nailing" is effected by specially heat treated ductile power pins which can be driven into the hard materials at rates of up to four per minute, representing great economy of time. Electrically, we think even greater interest lies in the specially threaded pin heads which are left projecting from the material surface, after the pin has been driven home, for readily accommodating the pipe brackets, saddles, and so on.



The tool in position ready for firing!

Crimping a power pin into steel



CORRESPONDENCE

Letters should bear the writers' names and addresses, not necessarily for publication. Responsibility cannot be accepted for the opinions expressed by correspondents.

"Fair Trading"

YOUR correspondent "M.I.E.E." makes some reference to an electrical wholesaler, but I appreciate that his real complaint lies with the electrical retailers. In the first place, it must be appreciated that the original requirement of four dozen "Bakelite" miniature b.c. lampholders (presumably s.b.c. lampholders) is a little unusual in these days. The electrical wholesaler behaved strictly according to the rules, and experience has shown that if those rules are weakened in any way to accommodate individuals, they soon become useless.

Had I been the wholesaler with material in stock, I think I should have phoned my nearest retail customer and suggested that he sent a messenger boy with the requisite order immediately to satisfy the customer.

There may be some instances where rigid adherence to a trading policy can cause inconvenience, but broadly speaking the trading policy adopted ensures fair treatment to all those within the electrical industry.

In reference to the final paragraph of the letter, I can only advise "M.I.E.E." that if manufacturers of domestic electric appliances were to adopt a direct-to-the-public scheme of distribution he would realize that this expensive method of distribution would quickly be reflected in the list price that the public would have to pay for a given appliance.

London, W.C.2. A. B. WILDSMITH,
Director,
Electrical Wholesalers' Federation.

More Generosity, Please!

AS president of the Royal Commercial Travellers' Schools, I would like to make a personal appeal to all readers of the *Electrical Review* for most urgently needed financial help to enable the vital work of the Schools to continue. This year we need not only £50,000 for normal current expenditure but also additional funds for essential rebuilding, alterations and repairs, the costs of which are seriously depleting the Schools' capital income.

I am afraid that it is *not* a matter for congratulation that the electrical industry, which has 16 orphan children at the Schools, each requiring £240 per annum to house, clothe, feed and educate, subscribes a mere £600 per annum towards their upkeep. A prosperous and expanding industry could surely do so much better than this.

For this reason I have made myself personally responsible for bringing this deplorable situation to the notice of the electrical industry which, I am sure, will not tolerate it as soon as it is appreciated. Let us all, therefore, in this glorious Coronation year, give immediate practical and generous assistance to the Schools whose gracious Patron is Her Majesty the Queen herself.

Contributions, both large and small, will be gratefully acknowledged by the Secretary, Mr. A. H. Carpenter, whose address is King's Court, Broadway, S.W.1, and who, I earnestly hope, will soon be able to tell me that our great industry is at last adequately supporting a splendid organization which is cherishing and nourishing so many of our own orphans.

LESLIE GAMAGE,
President,
Royal Commercial Travellers' Schools.
London, W.C.2.

New Swedish Power Station

A 50,000 kW power station with an annual output of 300 million kWh was recently opened at Krokströmmen on the Ljusna River in Northern Sweden. The plant, which has cost nearly £2,750,000, is operated by Kraft AB Gullspång-Munkfors and will supply power to three provinces in Central Sweden. When further lakes have been regulated in the river district, the capacity of the plant will be increased to 75,000 kW and the annual output to 470 million kWh.

COMMERCE and INDUSTRY

Iron and Steel Corporation's Report

Instrument Packing for New Zealand

IN 1952 the production of steel ingots and metal for casting amounted to 16·4 million tons, against 15·6 million tons in the preceding year. The Iron and Steel Corporation's report for 1951–52 containing this information (H.M. Stationery Office, 3s 6d) also shows that steel imports totalled 1·5 million tons. The Corporation and the Corporation companies made a manufacturing and trading profit of £64·4 million (against £54·4 million) after meeting all expenses including depreciation but before deducting interest and taxation charges.

Dealing with the development of the industry the report says that of the £200 million expected to be the cost of major schemes during the next five years, £86 million (43 per cent) will be spent on coke ovens, ore preparation plants and blast furnaces, £62 million (31 per cent) on rolling mills—mainly finishing mills—and £19 million (10 per cent) on melting shops. The remaining £33 million (16 per cent) will be accounted for by ancillary equipment serving the whole of a works rather than any particular section of it.

In 1952 capital expenditure was limited by the Government to £57 million against an estimated requirement of £69 million. Developments during the year are briefly reviewed.

Census of Production

An order indicating the scope of the census of production to be taken in 1954 for the year 1953 has been made by the Board of Trade. The census will cover all producing industries as before and returns will be required from all firms over a certain size in each trade. A sample will be taken of the medium sized and smaller firms, however, which means that the majority will not be required to make a return. The Order, which operates from 31st December next, is the Census of Production (1954) (Returns and Exempted Persons) Order, 1953. Copies may be obtained from H.M. Stationery Office (price 2d, by post 2½d).

Building Research

The second report of the Advisory Council (to the Ministry of Works) on Building Research and Development, Stationery Office, price 1s 3d, covers the Council's activities from 1949 to 1952. The Council surveys each year the entire known programme of building research in the United Kingdom and the report describes the preparation of this programme and how the views of bodies representative of the industry and professions are obtained on it, and gives the Council's main comments and recommendations as the result of its scrutiny of the programmes for 1951–52 and 1952–53.

An account is also given of the arrangements for communicating the results of research and development to the building industry and of the measures recommended by the Council to stimulate, as well as to satisfy, the demand for technical information.

Contract Price Formulæ

The British Electrical and Allied Manufacturers' Association has issued the figures for its contract price adjustment formulæ. In each case the rate of pay for adult male labour at 13th June is deemed to be 141s 6d. The "cost of material" figures are as follows:—

For electrical machinery and equipment: the Board of Trade index figure published on 13th June is 151·2.

For turbo-generating and allied plant: materials used in mechanical engineering industries, 143·4; blast furnaces and iron and steel smelting and rolling (40 and 41), 144·5; price of ⅝in o/d 18 s.w.g. brass condenser tubes (*Metal Bulletin*, 12th June), 3s 8½d per lb.

Outstanding contracts covered by the Board of Trade intermediate products index: the index figure for intermediate products (13th June) is 358·1.

Instruments in Transit to New Zealand

The Commercial Relations and Exports Department, Board of Trade, has been informed by the United Kingdom Trade Commissioner at Wellington, New Zealand, that there have been a number of instances of scientific instruments having been received in a damaged condition. It is assumed that the damage has been done during transit. The Director of the Dominion Physical Laboratory has reason to believe that most of the cases of damage in transit have occurred in motor ships, where the persistent vibration apparently causes "settling" in packing materials as well as damage to the more sensitive components in electric and electronic instruments. A further difficulty, which is to some degree peculiar to

the long transit to New Zealand, is the extremes of moisture and humidity encountered during the voyage. The Director of the Dominion Physical Laboratory of the Department of Scientific and Industrial Research in New Zealand states that there are problems connected with the packaging of scientific instruments and equipment for New Zealand which may be not only unsolved, but even unsuspected, in the United Kingdom. The Dominion Physical Laboratory would be prepared to give advice and assistance to United Kingdom manufacturers or trade associations. Any inquiries regarding this notice should be sent to Room 6175 at the Board of Trade, Horse Guards Avenue, London, S.W.1.

British Instrument Exhibition

The British Instrument Industries Exhibition opens at Olympia on Tuesday next and will continue until 11th July. A review of the exhibits will be published in our next week's issue.

Inquiry for a Gas Turbo-Generator

The United Kingdom Trade Commissioner at Lahore has reported that he has received an inquiry from the Rawalpindi Electric Power Co., which wishes to get into touch with a U.K. source of supply of a gas turbo-generating set of 3,000 to 4,000 kW capacity, 3,300 V, 3-phase, 50 c/s, 0·8 power factor and suitable for parallel operation with the existing steam turbo sets. It is intended that the steam plant should carry the basic load of the station at the most economical rating, the gas equipment coming into operation for peaks to save stand-by losses on the steam raising plant, but should be capable of long service continuous operation also. The Trade Commissioner emphasizes that the inquiry is no more than a preliminary one at this stage and United Kingdom manufacturers who are interested in this inquiry should forward literature and quotations (c.i.f. Karachi) to the chief engineer, Rawalpindi Electric Power Co., Ltd., Rawalpindi, for the entire generating equipment, the necessary switchgear, and the likely delivery period. Further information about this inquiry can be obtained from the Commercial Relations and Exports Department, Board of Trade, Horse Guards Avenue, London, S.W.1, quoting reference CRE 20390/53 Com 7945.

Rugby Engineering Society Jubilee

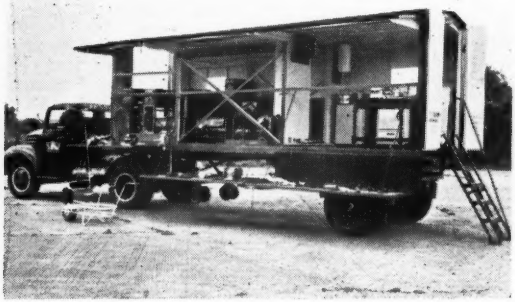
In October the Rugby Engineering Society completes its fiftieth year of activity and the Council has decided to mark this by holding, on 24th, 25th and 26th September, a conversazione and exhibition, the exhibition to show, as its major theme, the progress of engineering in Rugby during the half century. The governors of the Rugby College of Technology and Arts have placed the whole of the College at the disposal of the Society for the three days.

I.E.E. Summer Meeting

Members of the Institution of Electrical Engineers are reminded that the Summer meeting of the Institution will be held from Monday to Friday next week in the Newcastle-upon-Tyne area.

Mobile Demonstration Unit

A mobile demonstration unit has been commissioned by Petbow, Ltd., which is intended to tour the country and exhibit generating sets to rural dwellers. One end of the trailer houses five generating sets. All provide standard mains supply at 240 V single-phase 50 c.s and comprise a 7·5 kW automatic "start-on-demand" set with Lister FR2 water-cooled diesel engine; 6 kW automatic "start-on-demand" set with Petter AV2 water-cooled diesel engine; 3 kW automatic "mains-failure" set with Petter AVA1 air-cooled diesel engine; 2 kW "remote control" set with J.A.P. model 5 air-cooled petrol engine; and 1 kW "hand start" set with Brockhouse 125 c.c. air-cooled petrol engine. The other end of the trailer has been converted into a half-living room, half-kitchen, and some of the leading manufacturers of electrical appliances for the home have co-operated by lending suitable equipment. The lowered sides of the trailer carry an extensive range of electric tools and machinery for farming. A separate mobile arc-welding plant is towed behind the unit, and a complete range of accessories enables welding demonstrations to be given at each show.



Petbow mobile demonstration unit

The unit will be displayed at some of the principal agricultural shows this year.

Crompton Parkinson Employees' Bonus

Anticipating that the overall trading results of the Crompton Parkinson organization at home and abroad during the financial year ending 30th June will be satisfactory, the directors are paying a special bonus to employees. In general, the amount of the bonus is equivalent to or more than about two weeks' wages or salary. The full bonus is being paid to whole-time employees with twelve months' continuous service, but even those with only one month's service will receive one-quarter of the bonus.

Foster Transformer Factory

We are informed by Foster Transformers, Ltd. (a Lancashire Dynamo company), that the No. 2 factory at Leatherhead has started up and with the greater productive capacity and the drop in the price of electrolytic copper, price reductions have been made in many of its products.

Shock for Sheep Shearer

It was stated at an inquest at Stone, Staffs, on a farmer who received a fatal shock from a sheep shearer that the method of earthing "was completely crude and probably ineffective." Mr. I. W. Eyre, assistant district engineer for the Midlands Electricity Board, said that the cable was badly insulated and should have been plugged into a three-pin socket (connection was made to the lighting circuit in a cowshed by means of a lampholder adaptor) but this would not have mattered if an efficient earth had been used. The earth rod, which was home made, was not buried deeply enough, and the earthing wire was of inadequate size. The cable connecting the motor had deteriorated because of surplus oil and the black core had made contact with the motor and earth wire. A verdict of accidental death was recorded, the coroner adding that the inquest "should be a warning to us all not to meddle with electricity unless we know something about it."

Private Trading in Aluminium

The Minister of Materials announced in the House of Commons on Monday last that the Government had decided to restore private trading in aluminium from 1st July. The Control of Aluminium Order would be revoked, and the licensing arrangements for the private import of aluminium would be announced shortly by the Board of Trade. The Government had obtained from the Aluminum Company of Canada a reduction in the contract price of approximately £6 per ton. In order that, under private trading, the options after 1955 might be effectively operated, the Ministry had accepted an obligation for the following five years to buy up to 20,000 tons a year of unsold metal within the option quantities.

Prices of Materials

In the accompanying table we give the prices of the more important materials used in the electrical industry. The figures are those quoted on Monday last.

ALUMINIUM Ingots	.. ..	ton £161 0s 0d
COPPER, H.C. Electro	.. ..	ton £252 0s 0d
Fire Refined 99·70 per cent	..	ton £251 0s 0d
Fire Refined 99·50 per cent	..	ton £250 0s 0d
COPPER Tubes	.. .. ..	lb 2s 6½d
Sheet	.. .. ..	ton £305 10s 0d
H.C. wire and strip	.. ..	ton £282 15s 0d
LEAD, English	.. .. ..	ton £92 5s 0d
Foreign	.. .. ..	ton £91 0s 0d
MERCURY	.. .. ..	flask £70 10s 0d
TIN	.. .. ..	ton £690 0s 0d
ZINC, G.O.B. Foreign	.. ..	ton £71 0s 0d
Electrolytic	.. ..	ton £70 5s 0d
BRASS Tubes	.. .. ..	lb 1s 11¼d
Sheet	.. .. ..	ton £243 0s 0d
Wire	.. .. ..	lb 2s 6¼d
PHOSPHOR BRONZE		
Wire	.. .. ..	lb 3s 9½d
RUBBER, No. 1 R.S.S. spot	..	lb 20¼d–20⅜d

Works Visit

A party of Indian colliery managers saw recently the latest developments in miners' lighting equipment when they visited the experimental mine gallery at the works of Oldham & Son, Ltd., Denton, Manchester. The Indian managers, who are taking a post-graduate course at Sheffield University, after seeing the Oldham works, spent a considerable time in the experimental mine and later visited the company's laboratories where Mr. Bull demonstrated the uses of a number of special testing devices for mine lighting equipment.

Change of Name

The title of the Institute of Economic Engineering has been changed to the Society of Industrial Engineers.

Refrigeration Window Display Contest

The results of the recent Prestcold Refrigeration window display contest have now been announced. The winners were as follows:—

Class A (Electricity Board showrooms): First, North Western Electricity Board, Swinton Service Centre, Manchester; second, Merseyside and North Wales Electricity Board, Whitechapel Service Centre, Liverpool; and third, East Midlands Electricity Board, Northampton. Class B (departmental stores): First, Grant Bros., Ltd., Croydon; second, Hampton & Sons, Ltd., London, S.W.1; and third, Bentalls (Kingston), Ltd., Kingston-on-Thames. Class C (Prestcold domestic refrigerator dealers): First, G. R. Marson, Ltd., Coventry; second, D. Irons & Sons, Forfar; and third, Hunter Dunn, Ltd.,

Esher, Surrey. The following received merit awards:—Midlands Electricity Board, Birmingham, Birchfield Road, and Paradise Street Service Centres; North Eastern Electricity Board, York; Southern Electricity Board, Lymington; and Yorkshire Electricity Board, Leeds.

Instrument Catalogue

For the convenience of users of its telecommunication and allied industrial equipment Marconi Instruments, Ltd., St. Albans, Herts, has produced a 182-page bound catalogue providing full and up-to-date technical information on its instruments. This catalogue, which is to be published annually, includes illustrations and technical data on both a.m. and f.m. signal generators; valve voltmeters; Q meters; portable and high precision frequency measuring equipment; audio frequency sources and bridges; microwave test apparatus; and specialized instruments for particular measurement applications.

Young Executives' Summer School

Leading industrialists have sponsored, with university interests, a summer school for young executives to be held at Worcester College, Oxford, from 27th July to 22nd August. The school will be an experiment and, if successful, will be enlarged and repeated. Young men between the ages of twenty-five and thirty-four who hold junior executive posts in industry will learn from practical men with long experience of factory administration and from university teachers with specialist knowledge of economics, law, statistics, and history. Subjects for study include the basic structure of industry, management techniques, the country's economic position and the effects of industry on the country's social life. The committee responsible for the arrangements is under the chairmanship of Sir Hugh Chance, director of Chance Bros., Ltd. The school will be directed by Mr. J. Ayres, managing director, Petters, Ltd.

Trade Announcements

The sales office of the **Aluminium Wire & Cable Co., Ltd.**, is moving on 15th August to 30, Charles II Street, St. James's Square, London, S.W.1 (telephone : Trafalgar 6441/6).

A new branch is being opened by the **Hoffmann Manufacturing Co., Ltd.**, on 6th July at 176, Newport Road, Middlesbrough.

The sales office of **Sunvic Controls, Ltd.**, has been transferred to No. 1 Factory, Eastern Industrial Estate, Harlow New Town, Essex (telephone : Harlow 2031).

Kelly & Shiel, Ltd., Dublin, have purchased showroom and warehouse premises at Drawbridge Street, Cork, which will be opened at an early date. Mr. A. W. Dunlop, at present an assistant manager at the head warehouses in Dublin, has been appointed branch manager.

We are informed by **C. Ryan & Co.**, 2/20, Pancras Street, London, W.C.1, that from 1st July Pancras Street will be renamed Capper Street.

Electrothermal Engineering, Ltd., has now commenced production at Hamlet Court Road, Westcliff-on-Sea. This move will give increased production space and will enable the company to add to its range of products. The premises at 270, Neville Road, London, E.7, will still function as head office. The Development Department and certain manufacturing processes will also operate from this address.

Catalogues and Lists

Burton, Griffiths & Co., Ltd., 93, Albert Embankment, London, S.E.11.—Coloured folder describing the B.S.A. Acme "Snap-Lock" limit switch.

C. H. Eaborn, 113, Lodge Road, Redditch, Worcs.—Catalogue on "Sure-Poise" fluorescent bench lamps.

Follsain-Wycliffe Foundries, Ltd., Lutterworth, near Rugby.—Illustrated catalogue of "Blackheart" malleable iron castings, heat resisting metals, etc., and "Wyclip" safety girder clips.

British Insulated Callender's Cables, Ltd., 21, Bloomsbury Street, London, W.C.1.—48-page booklet, including a "Transart" inset, containing a general description of the company's consumer's service units (325); "Fifty-three" enamelled winding wires (328); connecting wires conforming to Ministry of Supply (Air) specification EL.1701 (327); overhead conductor equipment for electric haulage in mines (324); lightweight colliery telephone and signalling cables (329).

Wild-Barfield Electric Furnaces, Ltd., Elecfurn Works, Watford By-Pass, Watford, Herts.—Illustrated catalogue describing a range of vertical "Hairpin" furnaces (VH.453).

Information Department

THE extensive records of our Information Department enable us to reply to most queries, but occasionally we ask our readers' assistance in tracing names and addresses not known to us. We should be glad to have such information regarding the makers of the following:—

"Crown" conduit fittings.

General inquiries from readers relating to sources of electrical goods, makers' addresses, etc., are replied to by the Information Department through the post. Inquiries should be accompanied by a stamped addressed envelope.

OVERSEAS ELECTRICAL TRADE

Exports Lower in May

ALTHOUGH covering the same number of working days the value of exports of electrical apparatus in May at £14,622,668 was £935,388 lower than in the previous month. Compared with May last year, the figures show a decline of £1,945,693 and, as will be seen from Table I, the reduction in business was fairly general throughout the whole range of products, though there were a few bright spots notable among certain types of cables and accumulators, commercial radio apparatus, "other radio, telecommunication and electronic apparatus," cathode ray tubes, commercial electrical instruments, time recorders and time switches, vacuum

TABLE I. ELECTRICAL EXPORTS

Class	May, 1952	May, 1953	Class	May, 1952	May, 1953
	£	£		£	£
Telegraph and telephone cables and wires (submarine)	56,167	1,738	Insulating cloth and tape	91,688	37,677
Ditto, not submarine	963,895	767,058	Other insulating materials	98,567	69,310
Cables and wires, paper insulated	875,895	878,338	Unclassified electrical goods and apparatus	662,827	666,362
Ditto, rubber insulated	801,757	162,986	TOTAL, electrical goods and apparatus	10,217,027	8,892,090
Ditto, cotton, silk or artificial silk insulated	60,041	68,330			
Ditto, enamel, glass or asbestos insulated	58,451	83,964	Diesel driven generators, not exceeding 10 kW	165,216	69,528
Ditto, other	373,877	361,692	Ditto, over 10 kW to 65 kW		136,044
Commercial radio apparatus	629,827	850,529	Ditto, over 65 kW to 200 kW		88,943
Domestic radio apparatus	353,249	297,550	Ditto, exceeding 200 kW	209,421	75,426
Telegraph, telephone and signalling apparatus	1,528,260	1,115,079	Other generating sets	106,501	161,904
Loudspeakers and microphones	72,766	40,735	Generators and parts of generators	483,631	899,195
Radio, telecommunication and electronic apparatus components and parts, n.e.s.	583,545	116,735	Motors, railway, tramway and trolley-bus	6,876	7,251
Other radio, telecommunication and electronic apparatus	161,818	253,525	Ditto, other, not over ¼ h.p.	205,163	162,062
Cathode ray tubes	6,661	9,458	Ditto, over ¼ h.p. but under 1 h.p.	70,584	36,957
Other valves	284,925	173,112	Ditto, from 1 h.p. to 250 h.p.	450,708	357,234
Carbons	20,013	19,953	Ditto, exceeding 250 h.p.	65,153	82,499
Lamps, exceeding 24 V	97,342	73,231	Ditto, parts	116,937	168,148
Ditto, not exceeding 24 V	29,300	27,596	Converting machinery	25,802	29,603
Other lighting appliances	159,565	151,258	Transformers, including coils	871,065	798,805
Primary batteries	262,888	199,675	Mercury arc rectifiers	77,026	50,680
Parts other than carbons	23,592	27,525	Motor starting and controlling gear	215,126	192,617
Accumulators for motor vehicles	277,502	166,633	Switchgear and switchboards (not telegraph and telephone)	1,397,701	1,238,141
Ditto, traction	6,880	9,293	Electrical machinery, n.e.s.†	334,358	87,902
Ditto, radio	11,921	1,695	TOTAL, electrical machinery	5,101,301	4,613,539
Other portable accumulators	57,920	63,938			
All other accumulators	81,053	51,799			
Parts and accessories	74,032	52,360			
Cooking appliances	247,563	77,302	Washing machines (not exceeding 150 lb weight)*	171,878	344,762
Heating appliances	96,202	69,017	Ditto (over 150 lb but not exceeding 250 lb weight)*		78,194
Parts and accessories for cooking and heating appliances	87,160	64,318	Ditto, parts	55,761	32,212
Flat irons	81,012	49,303	Vacuum cleaners	216,038	121,598
Commercial electrical instruments	132,289	135,297	Ditto, parts	47,830	30,915
House service meters	169,104	126,601	Other electrically operated portable appliances	195,288	208,203
Time recorders and time switches	4,380	18,172	Portable electric tools	115,715	132,150
Other electrical instruments	128,152	111,249	Electrical pottery and glassware, including insulators	100,808	68,033
Electro-medical apparatus (not X-ray)	40,842	34,110	Electrical conduit tubes and cased tubes	52,717	70,972
X-ray apparatus, other than tubes and valves	71,121	51,855			
Vacuum flasks	58,458	63,179			
Permanent magnets	33,306	22,644	GRAND TOTAL	16,568,361	14,622,668

* Not separately distinguished in 1952.

† The two figures are not comparable.

tubes, generating sets other than diesel driven generators and parts, motors above 250 h.p., converting machinery, portable electrical appliances other than vacuum cleaners, portable electrical tools and conduit.

Table II.—Distribution of Electrical Goods and Apparatus

Destination	May, 1952	May, 1953
	£	£
Channel Islands	38,245	33,756
Gibraltar	36,463	8,998
Malta and Gozo	22,760	10,302
Cyprus	26,085	37,869
Gold Coast	60,186	63,276
Nigeria	175,068	161,649
Union of South Africa ..	724,541	934,822
Northern Rhodesia	99,295	63,164
Southern Rhodesia	270,383	112,339
British East Africa	157,584	194,040
Bahrein, Qatar and Trucial Oman	35,310	111,301
Kuwait	32,006	90,516
India	747,987	1,065,897
Pakistan	340,063	52,302
Malaya	439,777	363,302
Ceylon	97,358	139,687
Hong Kong	236,020	153,003
Australia	435,319	527,711
New Zealand	913,509	580,978
Canada	255,143	263,667
British West Indies	227,591	128,013
Anglo-Egyptian Sudan ..	84,586	150,140
Other Commonwealth Countries	127,839	218,807
Irish Republic	340,381	341,816
Soviet Union	17,666	19,976
Finland	201,988	40,299
Sweden	348,172	356,550
Norway	212,043	120,006
Iceland	26,007	11,386
Denmark	132,292	68,370
Poland	27,202	11,832
Western Germany	52,580	92,832
Netherlands	309,353	276,323
Belgium	156,296	151,216
France	63,983	268,626
Switzerland	16,841	39,087
Portugal	93,823	85,178
Spain	80,889	93,352
Italy	111,130	96,686
Austria	31,979	67,777
Czechoslovakia	12,871	6,962
Yugoslavia	14,408	26,240
Greece	108,156	53,734
Turkey	361,412	68,781
Portuguese East Africa ..	14,184	9,669
Syria	11,834	11,528
Lebanon	43,517	28,250
Israel	35,921	43,513
Egypt	265,054	125,761
Arabia	33,507	41,767
Iraq	105,034	152,471
Iran	15,383	12,606
Burma	70,731	51,228
Thailand	74,288	70,699
Indonesia	136,615	3,069
China	400	960
United States of America ..	112,132	108,058
Colombia	38,102	20,972
Venezuela	138,780	51,203
Peru	10,010	33,851
Chile	42,341	12,932
Brazil	267,352	18,027
Uruguay	35,302	5,161
Argentine Republic	86,232	8,867
Other Foreign Countries ..	328,056	246,291
Total ..	10,217,027	8,892,090

India, increasing its purchases from £747,987 to £1,065,897, heads the list of buyers of electrical goods and apparatus, with South Africa not far behind with £934,822 (£724,541). Though now only third in importance, the Australian market shows an improvement from £435,319 to £527,711. Full details of the distribution of the equipment to other countries are given in Table II.

With regard to electrical machinery, Australia increased its purchases of generating equipment from £79,608 to £241,835 to head the list of customers for such equipment, the next most important buyers being Norway (£190,731), British East Africa (£157,414) and South Africa (£144,145). Australia was also the second best market for motors, taking £104,499 worth; South Africa, whose share of the motors was valued at £124,138 (compared with £131,117 in May, 1952), took most of the "other electrical machinery" (£458,870), with India (£392,981) and Australia (£311,174) the next best customers.

Sea Rescue by Collier

THE radar equipment of the British Electricity Authority's 1,547-ton collier s.s. *Arthur Wright* played an important part in the heroic rescue work carried out by the vessel when the Swedish m.v. *Andaman* sank after collision in thick fog with a Panamanian ship last month.

The *Arthur Wright* was on passage from Shoreham to Goole on Sunday, 24th May, when, while off Dover, a radio message to all ships was received from North Foreland concerning a collision. Visibility was never more than 30 yards, but Captain D. Connacher, master of the *Arthur Wright*, could see on his radar screen a fairly large "echo" closely flanked by two small "echoes" about a mile away in the approximate position of the collision. As the collier proceeded towards the spot the large "echo" disappeared, which was no doubt the *Andaman* sinking. Soon afterwards the first of the lifeboats was sighted and its occupants were taken aboard. Then the second lifeboat was picked up. Within an hour of the collision, therefore, the *Arthur Wright* had taken on board the full crew of 38 men. They were later transferred to the Dover lifeboat, which was escorted to port by the collier.

A message of appreciation and gratitude for this heroic work, which was undoubtedly carried out in very hazardous circumstances, was sent to Captain Connacher and other officers of the *Arthur Wright* by Lord Citrine, Chairman of the B.E.A.

ELECTRICITY SUPPLY

Electricity from Waste Coal

School Tariff Representations

THE British Electricity Authority has received the consent of the Minister of Fuel and Power to the building of a power station at Ochiltree, Cumnock, Ayrshire. To be known as Barony power station, it has been specially designed to burn the "slurries" and "filter cake" produced when coal is cleaned at the washeries. Hitherto the great bulk of these very low grade fuels, which have both high ash and moisture contents, has been little used and is left as waste on the coalfields.

The Authority's power stations already make an important contribution to national fuel economy by using great quantities of low grade coal, thus releasing better quality coal for export and other purposes, and it is hoped that the Barony station will contribute still further to this economy. The plant will consist of two 30,000 kW turbo-generator sets and four boilers each of an evaporative capacity of 150,000 lb/hr. The station will also have two cooling towers each with a capacity of 1,500,000 gallons of water per hour.

Future of Pinkston Station

Discussion of a suggestion that Pinkston power station should be sold—on the agenda for the meeting of Glasgow City Council on 11th June—was deferred for a fortnight. Asking for the postponement, Councillor A. Hood said that it was one of the most important motions that had come before the Corporation and it was only the previous day that the large majority of members had come to realize its full significance. The proposal, by Councillor A. G. Murray, was that the Corporation should ascertain the sales value of the power station before deciding on the replacement of the 450 obsolete trams, and that an approach should be made to the British Electricity Authority inviting an offer.

Stratford Inquiry

A public inquiry was held at Stratford-on-Avon on 4th June into an application by the Midlands Electricity Board for sanction to erect lines at Alveston. It was conducted by Mr. H. V. Grimmitt (Ministry of Fuel and Power). Mr. G. P. Wilson, solicitor to the Board, said that the length of the proposed lines was 1,702 yd. Careful attention had been paid to their siting so that advantage would be taken of natural features to make the lines as inconspicuous as possible. The immediate purpose was to supply electricity to seven premises, including two farms, and the estimated cost was £1,919. This would be almost doubled if underground cables were used. All the owners and occupiers of land to be traversed had given their consent.

It was contended by Mr. T. E. Lowth, Town Clerk, that because Stratford was a unique town, with historical and cultural associations, the erection of overhead lines should not be considered purely from a utilitarian point of view or solely in terms of £ s d. The Borough Council felt that it was its duty to preserve the amenities of the town and surroundings in every possible way.

"All-Electric" Decision Rescinded

Dumfries Town Council, at its June meeting, decided to rescind a resolution passed in January that houses to be built on the Summerhill estate should be "all-electric." Instead, both gas and electricity services are to be provided. The Housing and Works Committee reported that the extra cost of installing both services was now estimated at only £4 1s 10d and not about £12 as originally given. Ex-Provost Bell thought it was only reasonable that gas should be provided for cooking and electricity for lighting and said that if that were done there would be equity and justice for all. When the Council had control of the gas and electricity services it always provided gas for cooking and electricity for lighting. In reply to a question on maintenance costs Bailie Marchbank said that figures given to him showed a substantial saving with gas cookers.

London Consultative Council

At a meeting of the London Electricity Consultative Council on 11th June it was reported that the Board had been informed of the importance which the Council attached to schemes for the simple hire of apparatus. In its

reply the Board indicated that it was in agreement with the Council's view but pointed out that the capital available would not permit the introduction at present of schemes of this nature.

The question of change-over of non-standard supplies in the London area was taken up with the Board which reported to the Council on the position to date and the proposals for the year 1953–54. It was estimated that during that year the work carried out would permit of the change-over from d.c. to a.c. supply of some 12,000 consumers with a demand of 9,000 kW.

As a result of a request by the Federation of British Industries the Ministry of Fuel and Power inquired into the adequacy or otherwise of the number of industrial representatives on Consultative Councils. The setting up of a special industrial committee was not favoured by the Council, but it stated that if the Minister wished to strengthen the industrial representation the Council would welcome the appointment of new members nominated by industrial bodies.

Protest Against Tariff

Oxford City Council is protesting against the application of the Southern Electricity Board's new commercial tariff to school premises and is pressing for the whole matter to be reconsidered. Representations are also being made to the Ministry of Fuel and Power. The city treasurer reported that, on the basis of consumption in 1952–53, the increase in cost to the Education Committee under the new tariff would be 60 per cent, or £5,[illegible] a year. The Committee felt that it was wro[illegible] to treat schools as commercial premises. Alderman E. W. B. Gill, a member of the Electricity Consultative Council, said that the Board[illegible] made the new tariff because the Act required Boards to promote the simplification and standardization of methods of charge. "The bureaucratic mind at once seized on that sort of thing and regimented everybody into one or two categories, and that was the cause of the whole trouble."

Transmission Line Route

A proposal by the British Electricity Authority to erect a transmission line connecting the Hams Hall power station with Melksham (Wiltshire) on high ground in the Redditch urban district is to be resisted by the Council's Planning Committee. It is suggested that the line should be routed by way of the valleys of the Rivers Arrow and Avon as far as Tewkesbury.

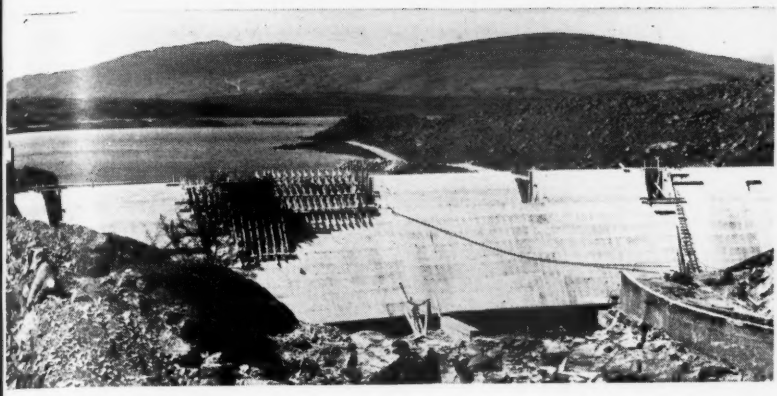
Electricity Sales in May

The accompanying table shows the quantity of electricity sold by the B.E.A. and taken by the Area Boards for their consumers in May. The national figures represent an increase over May, 1952, of 5·4 per cent, but when corrected for weather and the number of effective working days the increase is 7·0 per cent. The weather conditions were slightly colder and the number of effective working days less than in May, 1952.

ELECTRICITY SENT OUT BY AREA BOARDS FOR THEIR CONSUMERS

Area Board	Totals for May			Totals for Twelve Months Ended 31st May		
	1952 Mill. kWh	1953 Mill. kWh	Increase or Decrease %	1952 Mill. kWh	1953 Mill. kWh	Increase or Decrease %
London	360·6	389·1	+ 7·9	5,202·5	5,616·3	+ 8·0
South Eastern	215·2	236·6	+ 9·9	2,988·1	3,252·3	+ 8·8
Southern	252·9	283·7	+ 12·2	3,440·9	3,806·1	+ 10·6
South Western	124·2	138·6	+ 11·6	1,671·5	1,823·0	+ 9·1
Eastern	357·4	393·9	+ 10·2	4,848·0	5,286·1	+ 9·0
East Midlands*	326·4	345·9	+ 6·0	4,206·6	4,510·[illegible]	+ 7·2
Midlands*	450·9	462·3	+ 2·5	5,752·3	6,041·5	+ 5·0
South Wales*	275·1	264·1	− 4·0	3,177·3	3,305·[illegible]	+ 4·1
Merseyside and N. Wales*	258·8	260·2	+ 0·5	3,427·6	3,361	− 1·9
Yorkshire*	441·4	448·6	+ 1·6	5,538·1	5,8[illegible]	+ 6·1
North Eastern*	272·2	279·3	+ 2·6	3,516·4	3,522·[illegible]	+ 0·2
North Western*	481·7	500·7	+ 3·9	6,434·9	6,429·[illegible]	− 0·1
South East Scotland	89·3	93·3	+ 4·5	1,188·3	1,25[illegible]	+ 5·3
South West Scotland*	214·4	230·0	+ 7·3	2,875·1	3,0[illegible]	+ 5·5
Total all Area Boards	4,120·5	4,326·3	+ 5·0	54,267·6	57,12[illegible]	+ 5·3
Direct Supplies by Central Authority	59·3	77·5	+ 30·7	712·8	80[illegible]	+ 12·8
Grand Total	4,179·8	4,403·8	+ 5·4	54,980·4	57,92[illegible]	+ 5·3
Mainly Industrial Areas Marked*	2,720·9	2,791·1	+ 2·6	34,928·3	36,08[illegible]	+ 3·3
Mainly Non-Industrial Areas	1,399·6	1,535·2	+ 9·7	19,339·3	21,04[illegible]	+ 8·8
Total Number of Effective Working Days	28·48	27·75				

* Over half the total sales by the Boards in the preceding financial year were to industrial consumers.



Scottish Hydro-Electric Station

Gaur Scheme Inaugurated by Australian Prime Minister

ON Saturday last the Prime Minister of Australia (Mr. R. G. Menzies) officially inaugurated the new hydro-electric power station of the North of Scotland Hydro-Electric Board at Gaur in the north-west of Perthshire and on the borders of the ancient lands of the Clan Menzies near the Black Wood of Rannoch. Mr. Menzies was presented with two young Scots pines which will be flown to Australia. Speaking at the opening ceremony, Mr. Thomas Johnston, chairman of the Board, said that already the Board's schemes were saving the nation 600,000 tons of coal annually, and when those under construction and in course of promotion were completed the total yearly saving would be nearly two million tons.

The Gaur scheme will utilize the waters flowing off the Moor of Rannoch into Loch Eigheach to the extent of about 6,000 kW or an average annual output of 17 million kWh. But the water harnessed at the Gaur power station will be utilized three times more before reaching the sea, viz., at the power stations of Tummel Bridge, Clunie and Pitlochry.

Work started on the Gaur scheme early in 1950, and the main works consist of a dam, a pipeline, a 1,400ft fish pass and the generating station. The dam is situated at the outlet of Loch Eigheach and has a maximum height of 45ft. It is 350ft long and is built on solid granite. Construction

Above: **The new dam of the Gaur scheme**

Left: **A group at the opening ceremony. Left to right: Mr. R. G. Menzies, Mrs. Menzies, Mrs. Johnston and Mr. T. Johnston, chairman of the North of Scotland Hydro-Electric Board**

of this dam has doubled the length of Loch Eigheach to about 1¾ miles, and the new reservoir will have an effective storage of 170 million cu ft and will feed the generating station through a 12ft 6in diameter concrete-lined tunnel and reinforced concrete penstock, together some 1,200ft long.

This is the first single turbine power station of substantial size to be built in the country, the turbine being a 6,000 kW vertical Francis machine working under a gross head of 98ft. The output of the Gaur scheme will be fed into the Highland grid line which runs from Rannoch to Oban. The scheme also includes a diversion tunnel 1,060ft long and a 3,300ft aqueduct.

The consulting engineers were Babtie, Shaw & Morton for the civil works, and Strain & Robertson for the plant and machinery. The hydro-electric machinery for the power station was manufactured by Harland & Wolff, Ltd., for the English Electric Co., Ltd. The main control gates and valve were built by Glenfield & Kennedy, Ltd. The civil engineering works were constructed by A. A. Stuart & Son (Glasgow), Ltd., and road diversion was carried out by P. L. J. Heron. Frank Burnet & Boston took over the architectural design of the power station on the death of Mr. Manson, the original architect for the scheme. The control board and the h.v. outdoor station switchgear were supplied by Cooke & Ferguson, Ltd.

Business Efficiency Exhibition

Increasing Use of Electronic Equipment

HIGHER productivity depends to a very considerable extent on efficient office facilities. How modern electrical devices can help in this direction is to be seen at Olympia, London, where the Business Efficiency Exhibition, claimed to be the largest of its kind ever held, comprises displays by eighty-nine manufacturers occupying a floor area of 170,000 sq ft.

Electrical equipment is shown for dealing with practically every office task—and many industrial ones as well—not only in large organizations but also in small offices, shops, the consulting rooms of professional men and in fact everywhere where clerical work is done. Many of the machines perform comparatively simple tasks, others do in one operation what normally would require many separate efforts. Perhaps the most valuable feature of the machines, however, is their ability to eliminate human errors in monotonous work in which they are most likely to occur.

Electronic equipment is particularly prominent and includes a number of highly complicated computers. One of these, a compact, flexible, yet economic device, developed by the British Tabulating Machine Co., Ltd., to rapidly solve complex questions such as frequently face scientists in the aircraft industry, is "instructed" by a pack of prepared cards. Calculation from the cards is carried out by a battery of valves and a magnetic drum, enabling the machine to guide itself without human intervention through the numerous stages of processing information and printing it. The machine, apart from demonstrating its normal capabilities, solves any mathematical problem in a matter of milliseconds and, as a diversion, visitors are invited to try and beat it in a game of noughts and crosses or by presenting it with details of any card game and demanding from it an opening bridge bid.

Among other electronic computers on the Powers-Samas stand are card-to-type and type-to-card translators. With another example of card-controlled electronic calculator on the IBM United Kingdom stand are accounting machines, master clock time systems, and electric typewriters, which are claimed to give up to 90 per cent reduction in typing effort and make possible up to twenty carbon copies. Special typewriter lights are used on many of the Remington-Rand machines.

Practically all accountancy jobs can be dealt with at the turn of a key by means of the Burroughs "Sensimatic" machine in which every mathematical function and

carriage movement is controlled automatically. Another B.T.M. development, the "Hollerith" direct-sterling punched card electronic multiplier, consists of two main units, a standard gang punch and an electronic multiplying machine. The multiplicand and multiplier are recorded on punched cards, the product being punched into a selected field on the same cards. The speed of multiplication is so fast that the actual operating time can be considered as the machine speed of the gang punch, i.e., 6,000 cards per hour. The machine can be varied to suit individual requirements within a range of 8-14 digits for the product. Group multiplication, cross-addition and self-checking facilities can be added.

By means of electronic stencil cutting Roneo, Ltd., makes it possible to reproduce accurately on a duplicator all forms of illustrations or type matter without the use of negatives or blocks. A new Gestetner duplicator has an extremely silent built-in motor. It also incorporates a new synchronized self-inking system and a special drawer to accommodate three-colour sets. An entirely new copying process, the "Photoscope," is another Gestetner development.

Measuring only 36in by 18in by 11in, a new document copier made by Lawes Rabjohns, Ltd., will reproduce any original up to 16in wide in 5–10 min including development time. A photo-printing machine of the same make for the drawing office produces prints of any length, fully processed, at a speed of up to 30ft/min.

On the Adrema stand are "Bradma" addressing machines which are capable of doing in 30 min what would normally take 8 hr. Six thousand envelopes an hour can be opened by a Roneo-Neopost machine. Other examples of letter opening machines are shown by the International Coin Counting Machines Co., Ltd., which also demonstrates machines capable of counting up to 15,000 coins an hour. The Universal Postal Frankers "Totometer" can count and/or date, code, cross, endorse or otherwise imprint up to 60,000 paper or card sheets an hour.

In the new Blick "Autoclip" automatic time cards are stamped by electrical contact immediately on insertion. No levers are necessary and there can be overstamping. The machine can be used both for attendance and job costing or each separately. Other Blick exhibits are the "Stafsine" signature recorder for office staffs, master clock and staff locator systems, and watchmen's clocks.

The exhibition closes this evening (Friday).

Registered Contractors

A FURTHER decline in the number of electrical contractors on the Register is shown in the 1952 report of the Registration Board of the National Register of Electrical Installation Contractors. Actually there were 36 new registrations during the year, but 79 names were deleted from the Register for various reasons, and the total on the Register at the end of the year was 903, as compared with 943 in the previous year.

A total of 485 inspections were made involving the examination of 933 installations of all descriptions. The quality of workmanship shown in the installations inspected, in the majority of cases, maintained the improvement recorded in the last report. Talks by inspecting engineers to installation staffs of certificate holders on the application of the I.E.E. Wiring Regulations have produced good results. The report states that while the quality of workmanship has improved contractors still find it difficult in some instances to comply with the Regulations because some manufacturers still produce accessories that do not permit compliance.

The inspecting engineers have noted that the adoption of single pole fusing, where one pole of the supply system is permanently earthed, is increasing and also the use of the lead sheath of the supply cable for earthing, where the sheathing is continuous back to the source of supply. These two features are undoubtedly desirable. Many more cases have been noted of protective multiple earthing on new extensions in rural areas. This system provides a much lower resistance over the whole fault current path than is normally found in difficult areas. A considerable number of high resistance joints have been discovered on conduit back-entry loop-in systems. This is attributed to the fact that operatives do not tighten up all locking devices in the ceiling boxes immediately prior to drawing in cables.

The report expresses regret that circumstances have prevented Mr. F. W. Purse, hon. director, from resuming his activities in full and records the Board's gratitude to him for the valuable assistance he has always given. It also expresses its thanks to Messrs. W. A. H. Parker, R. H. Rawll and Forbes Jackson, the Inspection Committee and scrutineer, for their services, and to Mr. P. V. Hunter, chairman of the Board, and Mr. E. A. Mills, vice-chairman.

Financial Section

STOCKS and SHARES

REACTIONS in the Stock Exchange to the latest turn of events in Korea were seen mainly in a marking down of prices in the gilt-edged market. Most of the British Electricity stocks lost 10s per cent last week, while War Loan dropped by the best part of a point. Industrials continued to mark time, and few of the week's price-changes in the electrical equipment market had any particular significance.

Walsall Conduits Dividend

The final distributions declared last week by Walsall Conduits bring the total for the year to 70 per cent for the seventh time in succession. They apply this time, however, to Ordinary capital increased by one-third as a result of the free share bonus distributed a year ago, so that, in terms of money, the amount distributed to Ordinary shareholders for the period is £76,000 net, against £55,125 previously. After some contraction of profits during the year, and allowing for the Preference stock dividend, the Ordinary payments remain covered about twice over by the net surplus of £159,200 shown in the preliminary profits statement. There was little subsequent change in the price of the 4s Ordinary shares, which at 45s 6d ex-dividend show a yield of 6·15 per cent.

Ferranti Preference

Well-secured Preference stocks seem lately to have gained something in popularity at the expense of Ordinary shares. With the choice of stock on offer tending to narrow, attention may be called to the availability, in reasonable numbers, of the Ferranti 5½ per cent Third Preference shares, of which half a million were issued recently as a bonus to Ordinary stockholders. At 20s 9d they pay £5 6s per cent on the money. Annual interest on this issue will take not much over £15,000 net, as compared with last year's earnings of £493,000, after deducting tax and the dividends on the two senior Preference issues. The first dividend is due in November.

Ekco Results

E. K. Cole fulfilled hopes in maintaining the dividend for the year, ended last March, at a total of 25 per cent. This is at the same rate as for the previous period but, as in the case of Walsall Conduits, the final payment applies to capital increased by a share bonus given earlier in the year. This one-for-six share distribution followed a 25 per cent bonus in the previous period. The amount distributed is consequently a little higher this time at £37,500 net. It comes well within the surplus profit, after tax, of £134,200. This is down by £25,000 on last year's result, but only because of an increase of as much as £96,000 in a tax charge of over £400,000. The 5s shares remained at 18s, the yield being a little under 7 per cent.

Ultra Electric

The preliminary profits statement of Ultra Electric (Holdings) records an expansion in the trading surplus, converted by higher taxation into a reduced net profit. With the latter at £55,000, however, the Company is recommending an increase in the Ordinary dividend from 10 to 12½ per cent, the net amount involved in the latter being £21,500. At a price of about 6s 9d the 5s Ordinary shares show now a yield of 9¼ per cent. As a whole, the radio and television group of shares produced little reaction to the latest reports from the trade, which indicated the production of T.V. sets to be running at a rate of around a million a year, or to reports of official approval to the construction of new transmitting stations.

Lancashire Dynamo Progress

Growth of the Lancashire Dynamo Holdings business is illustrated by a five-year table published with the report of the annual meeting held last week. Net profits (before tax) are shown to have expanded during the period by some 59 per cent. Well over half the five-year total of nearly £2 million has gone in taxation amounting to £1·1 million. From the surplus of £870,000, a net sum of £355,000 in all has been distributed to stockholders. The combined amount of share capital and reserves employed in the business has been increased by nearly £900,000 to £2·6 million. At 41s 3d the Company's £1 Ordinary shares offer a yield of just over 6 per cent from a 12½ per cent dividend, paid from earnings equivalent to about 31 per cent on the nominal capital.

Electrical Engineering Prospect

Dealing last week with the trading outlook, the chairman of Lancashire Dynamo Holding echoed many another of this year's Company reports in his references to increasing competition and to pressure on profit margins. On

the same day, the chairman of Allen West reported that orders have become more difficult to obtain. Both, incidentally, made some reference to the question of whether a decrease in international tension might result in less defence work. Each Company evidently has plenty of work on hand, however, and a point was made in the former case concerning the particularly favoured position of the electrical sections of the engineering industry by virtue of the always increasing use of electrical goods and of the efficiency of British manufacturers.

Company	Dividend Previous	Dividend Last	Middle Price 22nd June 1953	Week's Rise or Fall	Est. Yield p.c. £	s	d
Gilt-edged and Overseas Stocks							
Brit. Elec. 1968/73	3	3	87½	−½	3	8	6
Brit. Elec. 1974/77	3	3	86½	−½	3	9	4
Brit. Elec. 1976/79	3½	3½	92	−½	3	16	1
Brit. Elec. 1974/79	4¼	4¼	101	+½	4	4	3
Calcutta Elec. ..	6†	6†	20/-xd	—	6	0	0†
East African Power	7	7	21/6	—	6	10	2
Nigerian Elec. ..	10	10	22/6	—	8	13	0
Palestine Elec. "A"	5†	Nil	12/6	—		—	
Perak Hydro-Elec.	Nil	Nil	15/-	—		Nil	
Equipment and Manufacturing							
Aberdare Cables (5/-)	20	25	16/-	—	7	16	1
Aerialite (1/-) ..	8½	8½	8/9	—	10	1	10
Allen, W. H. ..	15	15	46/3	—	6	9	9
Aron Elec. Ord. ..	15	15	38/9	—	7	14	10
Assoc. Elec. Ord. ..	20	20	73/9	—	5	8	6
Automatic Tel. & El.	15	15	57/6xd	—	5	4	3
Babcock & Wilcox	18	18	62/9d	−6d	5	14	9
Baldwin, H. J. (2/-)	25	20	4/-	+3d	10	0	0
Bakelite (10/-) ..	—	12½	17/-	—	7	7	0
British Aluminium	12	12	37/6	−6d	6	8	0
B.I. Callender's ..	9	10	36/-	—	5	11	0
British Thermostat (5/-)	30	35	31/3	+1/16	5	12	0
British Vac. Cleaner (5/-)	25	25	12/3	—	10	4	2
Brook Motors (10/-)	20	20	32/6	—	6	3	1
Brush Ord. (5/-) ..	10	4	3/3	—		—	
A. F. Bulgin (1/-)	30	50	2/9	—	10	18	0
Burco (5/-) ..	38¾	35	17/6	—	10	0	0
Chloride El. Storage	15	20	70/-	−1/-	5	14	4
Cole, E. K. (5/-) ..	25	25*	18/-	—	6	19	0
Cossor, A. C. (5/-) ..	Nil	10	8/9	—	5	11	3
Crabtree (10/-) ..	17½	17½	30/-	—	5	16	8
Crompton Parkinson Ord. (5/-) ..	11¼	11¼	10/-xd	—	5	12	6
De La Rue (5/-) ..	50	35*	7/-	—		—	
Decca (5/-) ..	112½	150	25/-	−6d	6	0	0†
Dewhurst (2/-) ..	22½	19*	5/6	—	6	18	3
Dictograph Tel. (2/-)	20	20	5/6	—	7	5	6
E.M.I. (10/-) ..	12	12	13/-	−3d	9	4	8
Electrical Components (5/-) ..	20	20	10/-	—	10	0	0
Elec. Construction	15	15	33/9	—	5	11	6
Enfield Cable Ord.	7½	5	20/6	—	4	17	6
English Electric ..	15	15	56/-	—	5	7	2
Ericsson Tel. (5/-)	22†	22*†	37/-	−6d	2	19	6†
Ever Ready (5/-)	35	35	26/-	—	6	14	8
Falk Stadelmann	15	15	12/3	—	7	2	0
G.E.C. Ord. ..	22½	22½	40/9	—	5	10	5*
General Cables (5/-)	30	30	16/3	—	9	4	8
Greenwood & Batley	15	17½	40/-	—	8	15	0
Hackbridge Cable (5/-)	20	20	12/-	—	8	6	8
Hackbridge Hewittic (5/-)	18	20	17/-	—	5	17	8
Hall Tel. Accs. (10/-)	10	10	10/-	—	10	0	0
Heatrae (2/-) ..	12½	12½	4/-	—	6	5	0
Henleys (10/-) ..	20	10½*	16/6	−3d	6	7	3
Holophane (5/-) ..	15	20*	12/6xd	—	8	0	0
Hoover (5/-) ..	35	25	22/-	—	5	13	8

Company	Dividend Previous	Dividend Last	Middle Price 22nd June 1953	Week's Rise or Fall	Est. Yield p.c. £	s	d
Equipment and Manufacturing (continued)							
Intl. Combustion (5/-)	25	15*	14/-	—	5	7	3
Johnson & Phillips	15	15	50/6	—	5	19	6
Lancashire Dynamo	12½	12½*	41/3	—	6	1	0
Laurence, Scott (5/-)	15	15	12/3	—	6	2	6
London Elec. Wire	12½	15	55/-	—	5	9	0
J. Lucas	7½	9½	37/6	—	4	17	9
Marryat & S. (2/-)	22½	22½	5/9	—	7	16	6
Mather & Platt ..	12½	15	48/-	—	6	5	0
Metal Industries ..	10	15	43/3	—		—	
Mid. Elec. Mfg. ..	15	15	59/6	—	5	0	10
Murex	12½	15	56/3	—	5	6	9
Newman Ind. (2/-)	10	10	2/3	—	8	17	9
Oldham & Son (1/-)	30	35	2/6	—		—	
Parnall (Yate) (5/-)	6	6	2/9	—	10	18	2
Parsons, C. A. ..	10*	12½	65/-	—	3	17	0
Plessey (5/-) ..	22½	25	22/6	—	5	11	1
Pye Deferred (5/-)	18	18	18/6	−6d	4	17	3
Revo (10/-) ..	27½	27½	46/-	—	5	19	7
Reyrolle	10*	12½	55/-	—	4	11	0
Scot. Cable (1/-) ..	30	32	11/9	—		—	
Siemens Ord. ..	10	10	33/6	−6d	5	19	6
Southern Areas ..	5	6	13/9	—	8	14	6
Strand Elec. (5/-) ..	17½	17½	10/-	—	8	15	0
Sturtevant (5/-) ..	17¼†	18·1*†	24/-	—	3	15	0†
Switchgear & Cowans (5/-)	22½	22½	14/-	—	8	0	9
Taylor, T. (5/-) ..	20	25	20/-	—	6	5	0
T.C.C. (10/-) ..	20	20*	35/-xr	—		—	
T.C. & M. ..	10	8½*	27/6	—	6	3	8
Telephone Mfg. (5/-)	10	10	8/3	—	6	1	3
Thorn. Elec. (5/-) ..	10	12½	10/6	−3d	5	19	0
Tube Investments	25	15*	56/-	—	5	7	8
Vactric (5/-) ..	Nil	Nil	5/-	—		Nil	
Veritys (5/-) ..	7½	10	4/9	−3d	10	10	6
Walsall Conduits (4/-)	70	70*	45/6xd	—	6	3	0
Ward & Goldstone (5/-)	45	45*	32/6	—		—	
Watford (2/-) ..	25	25	6/9	—	7	8	2
Westinghouse Brake	14	15	53/6	+1/6d	5	12	3
West, Allen (5/-) ..	15	15	11/3	—	6	13	4
Trusts, Transport and Communications							
Anglo-Am. Tel.: A Ord.	—	6	85½	—	7	0	3
Ord.	—	3¾	57½	—	6	10	5
Anglo-Portuguese	8	8	21/6	—	7	8	10
Brit. Elec. Traction: Def. Ord. ..	25	35	53/-xd	—	6	12	0
Cable & Wireless: Ord.	8	8	133	−2	6	0	4
4% Loan ..	4	4	96	+½	4	3	4
Calcutta Trams ..	6†	6†	23/-	−6d	5	4	4†
Cape Elec. Trams	5	5½	12/-	—	9	3	4
Marconi Marine ..	10	10	29/6	−6d	6	15	6
Oriental Tel. Ord.	16	16	69/-xd	—		—	
Telephone Props.	8	8	95/-	—		—	
Tele. Rentals (5/-)	10	10*	9/-	+6d		—	

* After capital bonus. † Dividends are paid free of income tax.

The above quotations are based upon the middle prices given in the Stock Exchange Daily Official List.

REPORTS and DIVIDENDS

Siemens Bros. & Co., Ltd.—The report and accounts for 1952, which have now been published, confirm the preliminary figures given in our issue of 5th June. The consolidated trading profit, including approximately £70,000 in respect of previous years, is £1,431,346, as compared with £1,275,037 for 1951, to which is added income from investments of £89,303, making £1,520,649. After providing £964,224 for taxation, the net profit is £556,425 (against £579,942). Of this, sums totalling £296,259 are allocated to reserves, and it is proposed to pay a dividend of 10 per cent for the year on the ordinary stock. This compares with a dividend of 7½ per cent, and bonus of 2½ per cent, paid for the previous year on capital existing before the " rights " issue in July last. The balance carried forward in the accounts of the parent company is £745,552 (against £744,078 brought in).

In his statement, General Sir William D. Morgan (chairman) says that ever improving facilities are essential for the retention of markets and the development of new ones in face of growing competition at home and abroad, and to this end the directors have recently sanctioned capital expenditure for the next twelve months far exceeding any previous allocation. During the last few months there has been a temporary slackening of orders, particularly for telephone exchange equipment from Government Departments both at home and abroad, due mainly to financial restrictions on capital expenditure. They believe that in due course these restrictions will be removed and that they must be ready to deal with heavy demands. Their task, therefore, is to maintain their production potential and their experienced employees so as to be ready to take the fullest possible load quickly. They are taking steps to deal with this phase, the results of which will inevitably show an increase in the work-in-hand figure. The clarification of the position in regard to the company's holding in Siemens & Halske A.G. is being actively pursued. For the time being it is proposed to retain £450,000 in the contingencies reserve. Their trading record so far in the current year is satisfactory.

W. T. Henley's Telegraph Works Co., Ltd., held its annual meeting on 19th June, when Sir John Dalton (chairman), who presided, said that their subsidiaries, Henley's (South Africa), Telegraph Works Co., Ltd., and Oakley Brothers, Ltd., had had satisfactory results for the year under review, but Henley's Tyre & Rubber Co., Ltd., suffered a serious setback, which was experienced by the whole of the tyre industry in this country. There was an overall drop in unit sales throughout the industry of over 30 per cent for giant tyres and over 45 per cent for passenger car tyres. In addition, a fall in the price of most of the major raw materials brought with it a reduction in selling prices both at home and abroad.

Installation of new plant at their Birtley factory continued during the year and a substantial increase was shown in tonnage of cable dispatched. Despite the changed trading conditions, the order book for 1952, apart from power cables, was generally well maintained and the turnover for both cable and engineering products was in total an all-time record. Their products were in demand in no less than sixty overseas countries. Exports were handicapped by copper rationing and import restrictions, but nevertheless export sales increased in relation to 1951 by approximately 10 per cent. During the year the nucleus of a contract organization was set up in Australia for the development of that side of their business. Exports of engineering products showed an advance on the previous year and formed a substantial proportion of their total sales of distribution equipment.

Speaking of future prospects, Sir John said that there was an overstocking of cables by the nationalized and other industries during the time of scarcity and they now awaited the re-entry into the market of their larger buyers as soon as current stocks of cable were run down.

Walsall Conduits, Ltd., announces a group trading profit for the year ended 31st December last of £405,067, as compared with £502,281 for 1951. Taxation requires £201,025, and the net profit is £159,192 (against £209,434). The proposed final ordinary dividend of 35 per cent and a bonus of 15 per cent, makes 70 per cent for the year, which is paid on capital increased by a one-in-three scrip bonus. The distribution for 1951 on the old capital was 70 per cent. The balance carried forward is £656,295 (against £589,337 brought in).

In his circulated statement, Mr. A. E. Read (chairman) says that the subsidiary, A. G. Hackney & Co., Ltd., at Hanley, is mainly concerned with the manufacture of electrical porcelain and during the second half of the year under review there was a substantial reduction in demand for their products. Cancellations of export orders in consequence of import restrictions imposed by certain countries and the continual rise in manufacturing costs which it has not been possible to recover in selling prices, have contributed to the adverse trading result. The turnover of the parent company has been satisfactory and exceeded that of the previous

year, but during the second half of the financial year trading conditions changed considerably, from a sellers' to a consumers' market. Increased costs have been met from increased output, but under increasingly competitive conditions it is now becoming more necessary than ever that the prices of all basic materials should be substantially reduced.

The Calcutta Electric Supply Corporation, Ltd.—The main figures in the accounts for 1952 were given in our issue of 5th June. In his circulated statement Sir James Donald (chairman) says that 1952 was primarily a year of consolidation and rehabilitation. With higher living standards there was an increase in the demand for electricity for domestic purposes and sales rose from 149.9 million kWh to 158.9 million. On the industrial side, also, there has been a considerable increase in electricity sold, sales of 610.6 million kWh comparing with 556.7 million kWh for 1951. While there is sufficient generating capacity to meet present demands and for a few years to come, it will not suffice to meet the anticipated demand from 1956 onwards. While they are awaiting an answer to their request for an import licence in respect of plant for the proposed new Southern station, a provisional agreement has been entered into with the Damodar Valley Corporation for a supply over a period of years commencing in 1956.

Simon-Carves, Ltd., reports group profits for 1952 of £840,456, an increase of £483,638 on 1951, and a net profit, after providing £57,375 for depreciation and £345,630 for taxation, of £301,724 (against £299,473). After making allocations to reserves amounting to £151,500, it is proposed to pay a final dividend of 7½ per cent, making 20 per cent for the year. The balance carried forward is £323,148 (against £240,996 brought in). In December, 1951, the existing pre-preference, preference, deferred and ordinary shares were converted into one class of ordinary shares, the preference holders receiving a capitalized distribution of 10 per cent in consideration of loss of rights.

Keith Blackman, Ltd., report a trading profit for the year to 31st March last of £413,025, as compared with £322,272 for the previous year. Taxation requires £236,957, general reserve receives £75,000, and stock depreciation reserve £25,000. It is proposed to pay an ordinary dividend for the year of 12½ per cent on capital doubled by the 100 per cent scrip issue. For the previous year 25 per cent was paid on the smaller capital. The balance carried forward is £106,507 (against £77,464 brought in).

Lightfoot Refrigeration, Ltd.—The accounts for 1952 show a trading profit of £57,183, as against £41,117 for 1951, plus dividends from subsidiaries of £2,062. From this is deducted depreciation of £14,717, and taxation of £25,570. Contingencies reserve receives £7,500, and it is proposed to pay a final dividend of 3 per cent, maintaining the distribution for the year at 6 per cent. The balance carried forward is £32,622 (against £31,597 brought in).

The Mirrlees Watson Co., Ltd., in a preliminary statement, shows a group profit for the year ended 31st March last of £175,995, as compared with £323,770 for 1951-52. After deducting £93,313 for taxation, £2,834 for minority interests, and £19,642 retained by subsidiaries, the parent company's net profit is £54,206 (against £113,197). The ordinary dividend for the year is unchanged at 15 per cent, and the balance carried forward is £37,672 (against £26,815 brought in).

The Aberdare Electric Co., Ltd.—A profit of £52,227 is shown in the accounts for the year ended 31st March last, as compared with £40,161 for the previous year. Taxation requires £25,000 and the dividend for the year is 8 per cent (same) on increased capital. The balance carried forward is £24,059 (against £17,913 brought in).

E. K. Cole, Ltd., report that after providing for depreciation and £400,600 for taxation, the group net profit for the year to 31st March last was £134,202, as compared with £159,215 for 1951-52. The final dividend is 15 per cent (same), but is paid on £294,075 ordinary capital as increased by a 16⅔ per cent scrip issue. With the interim of 10 per cent the total for the year is 25 per cent (unchanged).

Ultra Electric (Holdings), Ltd., shows group profits for the year ended 31st March last of £175,767, as compared with £162,385 for the preceding year. Taxation absorbed £120,966, and the dividend for the year is raised from 10 to 12½ per cent.

Greenwood & Batley, Ltd., report that after providing £112,543 for taxation, the net profit for the year ended 31st March last is £65,408, as compared with £50,044 for the previous year. Reserves receive £23,556, and the proposed final dividend is 10 per cent (same) plus a bonus of 2½ per cent (nil), making 17½ per cent for the year (against 15 per cent).

Broadcast Relay Services, Ltd., reports trading profits for the year ended 31st March last of £1,959,418, as compared with £1,611,747 for 1951-52, and after meeting all charges, including £664,363 for taxation, the consolidated net profit is £475,564 (against £541,837). The profit of the parent company is £271,726 (against £181,493). It is proposed to pay a final ordinary dividend of 10 per cent, making 18 per cent, free of tax, for the year (against 16 per cent, tax free, on smaller capital). The balance carried forward is £380,008 (against £377,241 brought in).

Reliance-Clifton Cables & Industrial Products, Ltd., in its accounts for 1952 shows a group trading profit of £418,683, as compared with £268,378 for 1951. After providing for depreciation and £234,906 for taxation, the net profit is £151,966 (against £103,794). It is proposed to pay a final dividend of 20 per cent, making 35 per cent for the year (against 30 per cent). It is also proposed to capitalize £39,250 of general reserve and apply it in paying up in full at par 39,250 of the unclassified preference shares to be issued as 5 per cent cumulative preference shares on the basis of one new share for each £4 ordinary stock held.

Associated Electrical Industries, Ltd.—The result of the offer for sale of £2,205,899 ordinary stock at £3 15s per £1 stock, which closed on 18th June, is that subscriptions have been received for 30 per cent of the stock offered, leaving 70 per cent to be taken up by the underwriters.

New Companies

W. F. Fordham & Co., Ltd.—Registered 1st June. Capital £6,000. To acquire the business of a wireless and electrical engineer and contractor carried on by W. F. Fordham at Dulwich Village. Directors : W. F. Fordham (permanent), G. W. Fordham and J. P. Fordham. Regd. office : 78, Dulwich Village, S.E.21.

Gunnersbury Radio & Television, Ltd.—Registered 14th May. Capital £1,000. Manufacturers of and dealers in radio and television sets, gramophones, etc. Directors : R. H. Longmate and F. Snell. Solicitors : Kenneth Brown, Baker, Baker, Essex House, Essex Street, W.C.2.

Milne-Rundle, Ltd.—Registered 16th May. Capital £1,000. Manufacturers and distributors of mechanical and electrical prime movers and engines of all kinds, etc. Directors : The Duke of Argyll, D. W. Grinnell-Milne, E. W. Rundle and J. J. Hambidge. Solicitors : Bischoff & Co., 4, Great Winchester Street, E.C.2.

F.S.D., Ltd.—Registered 4th June. Capital £100. To carry out research into the use of the wind as means for the production and storing of energy, power, fuel, chemicals and other by-products, and to carry on the business of electrical, mechanical, chemical and general engineers, etc. Directors : A. MacIntosh, S. C. Joseph, W. Moore and W. E. Wasdell. Solicitors : Godfrey & Diggines, 44, Waterloo Street, Birmingham, 2.

Parsons, Riley & Co., Ltd.—Registered 6th June. Capital £4,250. To acquire the business of radio, television and electrical contractors and dealers carried on by E. W. Parsons and J. Riley at 11a, West Way, Botley, Oxford as "Parsons, Riley & Co." Permanent directors : E. W. Parsons and J. Riley. Solicitors : Peter H. Reeves, Oxford.

Criterion Radio Vision (Leicester), Ltd.—Registered 5th June. Capital £3,000. Manufacturers and dealers in electrical and mechanical apparatus and accessories, wireless and television sets, etc. Directors : W. Taylor, Mrs. D. M. Taylor and A. A. Swain. Secretary : W. Taylor. Regd. office : 21, Friar Lane, Leicester.

Increases of Capital

Nalder Bros. & Thompson, Ltd.—Increased by £50,000, in £1 ordinary shares, beyond the registered capital of £65,000.

Salisbury Transmission, Ltd.—Increased by £50,000, in £1 ordinary shares, beyond the registered capital of £150,000. Birfield Industries, Ltd., held nearly all the issued shares.

Power Centre Co., Ltd.—Increased by £45,000, in £1 ordinary shares, beyond the registered capital of £5,000.

Liquidations

Pier Electrical (Brighton), Ltd., electrical engineers.—Winding up voluntarily. Liquidator, Mr. J. S. Bradley-Hole, of A. E. Orbell & Co., 7, Old Steine, Brighton, appointed 11th June. Particulars of claims to the liquidator by 17th July.

G. E. Collinge & Co., Ltd., electrical wholesalers.—Winding up voluntarily. Liquidator, Mr. A. Rothburn, Atlantic Chambers, 7, Brazennose Street, Manchester, 2 appointed 6th June.

Bankruptcies

J. L. Parker, electrician, 15, West Street, Horncastle, Lincs.—Last day for receiving proofs for dividend 30th June. Trustee, Mr. E. C. Stimpson, 22, Regent Street, Park Row, Nottingham, Official Receiver.

F. E. L. Hester, lately carrying on business at 9, Coal Exchange, Black Diamond Street, Chester, electrical contractor.—Receiving order made 13th June on debtor's own petition.

A. C. Snow, carrying on business under the style of A. C. Snow & Co. at 47, High Street, Barnstaple, mechanical and electrical engineer.—Public examination 7th July at the Guildhall, Barnstaple.

S. D. Bennett, carrying on business at 2, Burnt Ash Parade, Lee, London, electrical engineer.—Application for discharge to be heard on 30th July at the County Court, Scarbrook Road, Croydon.

F. Jones and **B. P. Callaghan**, formerly trading in co-partnership at 2, Farm Yard, Levenshulme, Manchester, under the style of "Jones and Callaghan," electrical engineers and sheet metal workers.—Trustee, Mr. F. C. Armrod, 20, Byrom Street, Manchester, Official Receiver, released 10th June, 1953.

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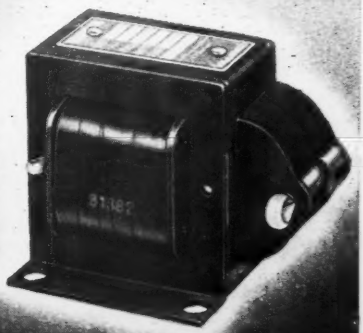

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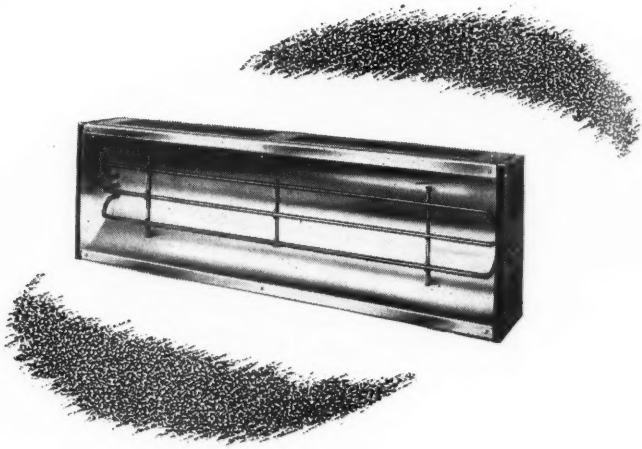

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NEW PATENTS

Electrical Specifications Recently Published

The numbers under which the specifications will be printed and abridged are given in parentheses. Copies of any specification (2s 8d each including postage) will be obtainable after 5th August from the Patent Office, 25, Southampton Buildings, W.C.2.

1947

21494. British Thomson-Houston Co., Ltd.—Apparatus for manufacturing electric fluorescent discharge lamps. 26th September, 1947. (695101.)

1948

9621. British Thomson-Houston Co., Ltd., and Wells, R. S.—Luminescent materials. 24th May, 1949. (695103.)

23349. Waters, P. L.—Electrical signal storage systems and apparatus. 1st October, 1949. (695100.)

29760. Wagenbauer, A.—Electrical butt seam welding process and apparatus for carrying out the process. 10th November, 1948. (695102.)

29706. Standard Telephones & Cables, Ltd., Beck, A. H. W., Cutting, A. B., and Brisbane, A. D.—Electric rectifiers and devices of the semi-conductor contact type. 29th November, 1949. (695011.)

1949

13668. Musso, M.—Automatic voltage regulating system. 23rd May, 1949. (Convention date not granted.) (695106.)

31171. General Electric Co., Ltd.—Pulse code signalling systems. 1st December, 1950. (695198.)

32994. General Electric Co., Ltd.—Electrical pulse code signalling systems. 22nd December, 1950. (695199.)

1950

1865. Metropolitan-Vickers Electrical Co., Ltd.—Lighting fittings. 9th February, 1951. (695114.)

5304. Philips Electrical Industries, Ltd.—Television transmitting tubes. 2nd March, 1950. (695115.)

6072. Standard Telephones & Cables, Ltd.—Manufacture of coaxial conductor electric cables. 9th March, 1951. (695018.)

7017. Standard Telephones & Cables, Ltd.—Amplifiers employing semi-conductors. 16th March, 1951. (695019.)

7863. Wood, E., and Hendry, T.—Electrical heating and/or lighting devices. 27th March, 1951. (695205.)

10299 & 10305. General Electric Co., Ltd., and Donehan, J. A.—Electrode holders for arc welding. 26th April, 1951. (695280.)

11875. Scotton, H. E.—Electric radiant heating apparatus. 1st June, 1951. (695284.)

17260. Peters, J. A., Bird, R. C., and Puttick, H. G.—Apparatus for generating electricity. 2nd July, 1951. (695288.)

19157. Parsons, Ltd., C. H., and Handley, G. B.—Plug unit of an electric plug-and-socket coupling. 6th September, 1951. (695290.)

20175. Revo Electric Co., Ltd.—Rotary electric switches. 13th August, 1951. (695125.)

21067. Ziegler, W.—Testing of thermionic valves. 25th August, 1950. (695292.)

23010. British Insulated Callender's Cables, Ltd.—Working of aluminium and aluminium alloys by drawing through dies. 19th September, 1951. (Cognate application 8203, 9th April, 1951.) (695029.)

23805. British Insulated Callender's Cables, Ltd., and British Copper Refiners, Ltd.—Manufacture of copper. 27th September, 1951. (695295.)

24962. Dewhurst & Partner, Ltd., Jackson, J. A., and Dewhurst, M.—Electromagnetic contactors. 8th October, 1951. (695[illegible].)

27109. Marconi's Wireless Telegraph Co., Ltd.—Electric cable connectors. 22nd June, 1951. (695215.)

27290. Opperman, E. G.—Electric ironing machines. 17th October, 1951. (695216.)

27568. Marconi's Wireless Telegraph Co., Ltd.—Microwave radio scanning arrangements. 4th October, 1951. (695031.)

27570. Telegraph Construction & Maintenance Co., Ltd.—Moulds for making welded joints of thermoplastic material. 9th November, 1951. (695217.)

28068. Metropolitan-Vickers Electrical Co., Ltd.—Electric circuit-breakers employing resistance switching. 8th August, 1951. (695032.)

28559. British Thomson-Houston Co., Ltd.—Ignition devices. 22nd November, 1950. (695302.)

29515. Strong, H. V., and Eisler, P.—Metallized electric insulators. 30th November, 1951. (695306.)

29768. Metropolitan-Vickers Electrical Co., Ltd.—Continuous heat-treatment of metal strip or wire. 11th October, 1951. (695221.)

30108. Cinema-Television, Ltd.—Electric transformers. 7th December, 1951. (695222.)

30443. British Thomson-Houston Co., Ltd.—Process for making resinous compositions for the manufacture of articles having a self-lubricated surface. 13th December, 1950. (695037.)

30565. General Electric Co., Ltd.—Electric gating devices. 14th December, 1950. (Divided out of 695198.) (695223.)

31130. British Thomson-Houston Co., Ltd.—Electric heating apparatus for steam raising and like purposes. 29th October, 1951. (695142.)

31623. Bendix Aviation Corporation.—Protection of electrical generator systems. 29th December, 1950. (Addition to 641671.) (695143.)

1951

2069. British Thomson-Houston Co., Ltd.—Methods of and apparatus for assembling filament mounts for electric lamps. 26th January, 1951. (695226.)

2644. Naamlooze Vennootschap Philips' Gloeilampenfabrieken.—Devices for supplying voltage impulses to electric fences. 2nd February, 1951. (695147.)

3050. Staatsbedrijf der Posterijen Telegrafie en Telefonie.—Receiver for voice frequency telegraph systems. 7th February, 1951. (695229.)

3754. Ballantyne, N. Z.—Electron-discharge devices. 15th February, 1951. (695045.)

4691. Thermionic Products, Ltd.—Electromagnetic transducing apparatus. 23th February, 1952. (695150.)

[illegible]381. Fielden (Electronics), Ltd.—Measurement of conductivity of liquids. 2nd May, 1952. (695058.)

11703. Benoit, J., and Szepesi, Z.—Light portable short-wave transmitter-receiver requiring no adjustment. 18th May, 1951. (695326.)

12193. General Electric Co., Ltd., and Rudge, T. R.—Alternating current electrical measuring instruments. 7th May, 1952. (695068.)

12460. British Thomson-Houston Co., Ltd.—Testing apparatus for electric circuits and components. 13th March, 1952. (695240.)

13047. Lanfers, H. H., Ter Brugge, B. R., and Mulder, H. W. S. (trading as Industrie-en Handelsonderneming Antagon).—Electrical devices for protecting machines. 1st June, 1951. (695241.)

13580. Deletaille, E.—Electrical variable-speed gears. 7th June, 1951. (695245.)

14146. Aktieselskabet Fisker & Nielsen.—Vertical vacuum cleaner. 14th June, 1951. (695246.)

14260. Telefonaktiebolaget L. M. Ericsson.—Plug-and-socket devices for the connection of electric cables. 15th June, 1951. (695161.)

14571. Soc. d'Electronique et d'Automatisme.—Control of electron discharge tubes. 19th June, 1951. (695162.)

16094. Bird Electronic Corporation.—High-frequency line termination devices. 6th July, 1951. (695166.)

17347. Valensi, G.—Colour television receiving apparatus. 23rd July, 1951. (695251.)

18235. British Thomson-Houston Co., Ltd.—Phase-shifting circuits. 7th May, 1952. (695075.)

18879. Edison Swan Electric Co., Ltd.—Method of preparing luminescent screens. 10th August, 1951. (695335.)

21782. Wogerbauer, A.—Continuous process of electrically cutting work pieces. 16th November, 1948. (Divided out of 695102.) (695172.)

22819. Modern Telephones (Great Britain), Ltd.—Intercommunication telephone systems. 1st October, 1951. (695340.)

24250. British Thomson-Houston Co., Ltd.—Calcium phosphate phosphors. 17th October, 1951. (695175.)

24316. Akt.-Ges. Brown, Boveri & Cie.—Sealed metallic-vapour filled electric discharge vessels, particularly mercury vapour rectifiers. 18th October, 1951. (695176.)

24448. Egysult Izzolampa es Villamossagi Reszvenytarsasag.—Electric incandescent lamps. 19th October, 1951. (695081.)

29195. Standard Telephones & Cables, Ltd.—Radio navigation systems. 13th December, 1951. (695085.)

1952

2441. Compagnie Generale de Télégraphie sans Fil.—Condensers. 29th January, 1952. (695185.)

3383. Philips Electrical Industries, Ltd.—Magnetic modulators comprising ferromagnetic ferrite. 8th February, 1952. (695186.)

3956. Patelhold Patentverwertungs & Elektro-Holding Akt.-Ges.—Micro-wave amplifying devices. 14th February, 1952. (695187.)

5506. Philco Corporation.—Electrical communication systems. 3rd March, 1952. (695350.)

8171. Soc. Electro-Mecanique de Caveyron.—Eddy-current braking devices. 31st March, 1952. (695369.)

11968. British Thomson-Houston Co., Ltd.—Brush-holders. 12th May, 1952. (695096.)

23264. Metropolitan-Vickers Electrical Co., Ltd.—Lighting fittings. 9th February, 1951. (Divided out of 695111.) (695190.)

TRADE MARKS

APPLICATIONS have been made for the registration of the following trade marks. Objections may be entered up to 17th July:—

COPCO. No. 694,911, Class 7. Electrically and pneumatically driven tools, machine tools, electric grinding and polishing machines, electric screw-threading machines, feed legs and feed bars for rock drills and similar tools, tool sharpening machines, mining machines, conveyors (machines); hoisting, hauling and lifting machines; shovel loaders (machines), fluid actuated piston cylinders, hydraulic pressure fluid power transmission units, motors (other than motors for land vehicles), pumps included in Class 7, valves (being parts of machines), and gas compressors (machines) and electric generators; and parts and fittings, all included in Class 7, for all these goods, but not including collet chucks or parts or any goods of the same description.—Aktiebolaget Atlas Diesel, Sickla, near Stockholm, Sweden. Address for service, c/o Marks & Clerk, 57 and 58, Lincoln's Inn Fields, London, W.C.2.

BRUSH (design). No. 701,423, Class 7. Electric alternators, turbines, steam condensers, induction motors (not for land vehicles), dynamos and electric welding machines.—Brush Electrical Engineering Co., Ltd., Falcon Works, Loughborough, Leics.

No. 712,468 (design), Class 9. Audible and visual staff locating and calling apparatus, electric amplifiers, time recorders, electric signalling and alarm apparatus, telephone instruments and apparatus, loudspeakers, microphones, public address apparatus, radio apparatus, electric time switches, sound recording and reproducing apparatus.—Dictograph Telephones, Ltd., Aurelia Road, Croydon, Surrey.

Exide Convention

SOME of the problems encountered in battery trading during the past twelve months were reviewed by Mr. H. V. Schofield, M.C., M.I.E.E., director, Chloride Batteries, Ltd., in his opening address to delegates attending the 24th Exide Service Agents' Convention at Blackpool on 10th June. Mr. Schofield said that the past year had probably been as difficult as any they had ever experienced. The freeing of the lead market in October, 1952, instantly caused the price to fall from £130 to £100. In the spring of 1952 the company was buying lead at £180 a ton. When the price was later reduced to £130, the company reduced its prices quickly, although it was supplying batteries produced from lead bought at £180. The results of this policy had been reflected to some extent in the parent company's balance sheet.

Over 500 delegates representing the motor, radio and electrical trades travelled to Blackpool on the previous day from Exide agencies all over the British Isles. The climax of the Convention was, as usual, the annual banquet and ball held on 11th June, and attended by well over 600 guests. Mr. A. W. Browne, O.B.E., M.I.E.E., chairman of Chloride Batteries, Ltd., presided and proposed the toast of the Mayor and Corporation, to which Councillor Edwin Smith, J.P., the mayor, responded. Mr. Schofield proposed the toast of the Exide service agents, visitors and the Press, and paid tribute to Mr. C. J. Barlow of the Warrington Electrical Co., the second service agent to be appointed, who recently retired from active participation in his auto-electrical, radio and electrical contracting business. To mark his retirement, Mr. Schofield presented him with an inscribed silver salver, and Mrs. Barlow received a handbag. Mr. Barlow replied to the toast on behalf of the service agents and Mr. [illegible] T. Lewis, *News of the World*, on behalf of the visitors and the Press. Dancing and a cabaret followed. The final business session was wound up by Mr. Schofield, and was followed by luncheon.

CONTRACT INFORMATION

Accepted Tenders and Prospective Electrical Work

CONTRACTS OPEN

Where "Contracts Open" are advertised in our "Official Notices" section the date of the issue is given in parentheses.

Alnwick (Northumberland).—2nd July. U.D.C. Supply and erection of 41 street lamps for trunk road lighting. Surveyor, Council House, Wagonway Road.

Australia.—MELBOURNE.—29th July. State Electricity Commission of Victoria. Cooling tower with induced draft fans. (C.R.E. 20978/53. Ten/6639.)*

Bootle.—2nd July. Education Committee. Electrical installation at County Grammar School for Boys. (See this issue.)

Cheshunt.—13th July. U.D.C. Lanterns, etc., for 250 W mercury discharge lamps, for street lighting scheme in College Road. Forms from the surveyor, Manor House.

Felling (Durham).—U.D.C. Installation of fluorescent lighting at Holly Hill and Crowhall Lane, Felling. H. Fawcett, surveyor, Council Offices.

Hale.—7th July. U.D.C. Street lighting installation, Delahays Road (Group B). Forms from N. S. Thomas, clerk, Council Offices, Ashley Road.

Heston and Isleworth.—10th July. Corporation. Street lighting equipment. (See this issue.)

India.—BOMBAY.—31st July. Chief Engineer, Electric Grid Department. Distribution transformers for Barejadi and Anand substations. (C.R.E. 20358/53. Ten/6608.)*

Newburn (Northumberland).—4th July. U.D.C. Electric wiring of 19 houses in Whitehall Road, Walbottle. J. A. Weatherley, surveyor, Council Offices, Newburn.

Rothwell (Yorks).—8th July. U.D.C. Street lighting. (See this issue.)

Sheffield.—4th August. City Council. Pumps with motors, switchgear, etc., for sewage pumping station, Livesey Street. Forms from the city engineer, Town Hall.

Thailand.—BANGKOK.—15th July. Royal Thai Irrigation Department. Three 200 kW generating sets. (C.R.E. 20743/53. Ten/6635.)*

United States.—CENTRALIA.—6,250 kVA hydro-electric generator. (C.R.E. 20874/53. Ten/6640.)*

*Specifications may be inspected at the Commercial Relations and Exports Department, Board of Trade, Horse Guards Avenue, Whitehall, S.W.1 (Trafalgar 8855).

ORDERS PLACED

Blackpool. — Highways Committee. Accepted. Seventy-five special concrete street lighting columns for decorative street lighting on the Promenade (£931).—Stanton Ironworks, Ltd. Seventy-five decorative street lanterns for fluorescent lighting (£2,190).—G.E.C.

Dewsbury.—Housing Committee. Electrical installations in 126 houses, Wakefield Road estate (£3,295), 66 houses, Headfield Road estate (£1,647) and 30 houses, Church Lane (£740).—Hammerton & Waring, Ltd. Installations in 24 houses, Green Lane estate (£598).—Senior & White, Ltd.

Hyde.—Highways Committee. Recommended. Supply and erection of 88 sodium and seven fluorescent lamps along Manchester Road and Mottram Road.—Metropolitan-Vickers Electrical Co., Ltd.

London.—L.C.C. Electrical installations in schools:—Meridan Primary School, Greenwich (£3,082).—Johnson, Smith & Co., Ltd. Telferscot Primary and Secondary Schools, Wandsworth (£3,299), and Lyndhurst Grove Primary School, Camberwell (£3,022).—Electrical Contracting Co. Elmfield Secondary School (£3,249).—D. C. Engineering Co., Ltd.

Lowestoft.—Housing Committee. Electrical installations in 32 houses on the Whitton estate (£794).—Hughes (Lowestoft), Ltd.

WORK IN PROSPECT

Particulars of new works and building schemes for the use of electrical installation contractors and traders. Publication in this section is no guarantee that electrical work is definitely included. Alleged inaccuracies should be reported to the Editors.

Addlestone.—Additional factory building; Remington Rand, Ltd., 1, New Oxford Street, W.1.

Alnwick.—Bus station for United Automobile Services, Ltd.; A. A. Briggs, architect, 10, Fleet Street, London, E.C.4.

Ashington.—Terraced houses (80), Darnley Road; U.D.C. surveyor.

Biggleswade. — Houses (144); surveyor, Rural Council Offices.

Blackpool.—Houses (20), College Avenue; J. H. Smythe, 82, Lockerbie Avenue, Cleveleys.

Blyth.—Clothing factory for Town Tailors, Ltd., Mabgate, Leeds, 9; own architects.

Bournemouth.—Frozen food warehouse and offices, Wilson Road; Eldorado Ice Cream Co., Ltd., Stamford Street, S.E.1.

Pathological Laboratory at Royal Victoria Hospital (£26,000); South Western Regional Hospital Board, 76, Wimpole Street, W.1.

Brentwood.—Houses (128), Bishops Hall estate; D. A. Dallas, U.D.C. surveyor, Ingrave Road Council Offices.

Bristol.—Warehouse, Stokes Croft; Bray & Slaughter, Ltd., Locks Mill, Parson Street.

Development of estate for housing at Eastwood Crescent; city engineer, 470, Bath Road, Bristol.

Bromley.—Block of flats at Longfield site, London Road; S. Critchley Auty, town clerk, Municipal Offices.

Bromsgrove.—Old people's bungalows (10), Church Avenue, King's Meadow estate; H. T. W. Gough, architect to R.D.C., 45, Newhall Street, Birmingham, 3.

Buckingham.—Dwellings (24), Akeley, Padbury and Marsh Gibbon; Scherrer & Hicks, architects, 19, Cavendish Square, W.1.

Darlington.—Construction of superstructure at Broken Scar pumping station for Tees Valley Water Board (£86,000); Sir Lindsay Parkinson & Co., Ltd., contractors, Blackpool.

Durham.—Technical college at Bishop Auckland; county architect, Court Lane, Durham.

Eastbourne.—Hostel block and dining and teaching block, Chelsea College of Physical Education; borough surveyor.

Ellesmere.—Health centre; C. H. Simmons, Shropshire county architect, Column House, London Road, Shrewsbury.

Epping.—Houses (36), on site at Harlow; A. W. R. Webb, R.D.C. surveyor.

Eston.—Houses (18) on the Redcar Road East estate for the U.D.C.; N.C. Harrison, surveyor, Normanby Road, South Bank-on-Tees.

Frome.—Houses at Wanstrow and Beckington, for Frome R.D.C.; H. Goldsmith, architect, 18, Gay Street, Bath.

Golborne.—Houses and bungalows (42), at Culcheth; J. B. Hoyle, U.D.C. surveyor, Council Offices, Lowton, near Warrington.

Hampshire.—Additional classrooms, electrical work, etc., at schools at Ringwood, Romsey, Alton, Basingstoke, Eastleigh and Farnborough; county architect, The Castle, Winchester.

Leatherhead.—Houses (153), Bramley Way; J. L. Davies, U.D.C. surveyor, Urban Council Offices.

London.—Blackheath.—Flats (21) and houses (16), Pond Road; Richardson & Houfe, architects, 31, Old Burlington Street, W.1.

City.—Office block, Bridewell Place; Trollope & Colls, Ltd., 41/44, Great Queen Street, W.C.2.

New Bond Street.—Hotel; Michael Rosenauer, architect, 86, Brook Street, W.1.

Shoreditch. — Flats (40), Cropley Street; borough engineer.

Malmesbury.—Houses (24), Corn Gastons site; Edwards & Webster, architects, 10, St. Mary Street, Chippenham.

Manchester.—Extensions to factory for Aldhouse Milnes, Ltd., Wythenshawe estate; John Eaton & Son, architects, Stamford Street, Ashton-under-Lyne.

Factory at Wythenshawe Estate for Benrath Machine Tools; E. E. Coleman, Ltd., Waverley Road, Sale.

Newcastle-on-Tyne.—Houses (221), Kenton North estate; city architect, 18, Cloth Market.

Newcastle - under - Lyme. — Additional works; F. H. Burgess, Ltd., Friars Street.

Northolt.—Old people's hostel, Northolt Grange estate; Geo. Whitby, architect, 14, North Audley Street, W.1.

North Riding.—Ten firemen's houses at Richmond; county architect, County Hall, Northallerton.

Ossett.—Houses (44), in six groups; town clerk, Town Hall.

Penrith. — Houses (34), Scaws estate, for U.D.C.; F. Birkbeck, surveyor, Town Hall.

Portsmouth.—Dwellings (34), Central Street; T. K. Makins, architect, 4, Landport Terrace.

Rothbury.—Houses (60); J. M. Oliver, R.D.C. surveyor, Council Offices.

Saddleworth.—Houses (104) and flats (12), Carr Barn estate, Greenfield, for U.D.C.; Howard & Benson, architects, 88, Mosley Street, Manchester, 2.

Sheffield.—Fire station, Darnell Road and dwellings (269), Greenhill estate; city architect, Town Hall.

Sittingbourne and Milton.—Houses (120), North Court; U.D.C. surveyor, High Street Offices, Sittingbourne, Kent.

South Shields.—Houses (529) and four shops and flats at West Simonside (£759,000); Myton, Ltd., builders, Hull.

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Southwell.—Houses (50), on site off Forest Road, Ollerton; S. Cooper, R.D.C. surveyor, 8, Westgate.

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Stockport.—Houses (56), off Keswick Road; H. T. Barnes & Son, Ltd., 23, Richmond Road, Altrincham.

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Tewkesbury.—Science, staff and class rooms at secondary modern school; county architect, Shire Hall, Gloucester.

Tynemouth.—Houses (142), Chirton estate; J. H. Rogers, Regent Terrace, North Shields.

Walsall.—Flats (20) and shop, St. Matthew's Close, Church Hill, and block of maisonnettes, Bath Street; M. E. Habershon, Borough surveyor, Council House.

Watford.—Blocks of shops and maisonnettes on Hillside estate, Abbots Langley, and Tolpitts Lane, Holywell site; F. Sage, borough surveyor, Town Hall.

Whitefield.—Secondary school at Higher Lane (£128,995); county architect, Preston.

Widnes.—Phase 1 of Ditchfield Road County School for Lancashire C.C.; Morley & Sons, Hall Lane, Huyton Quarry.

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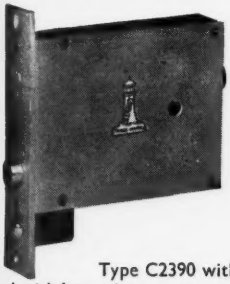

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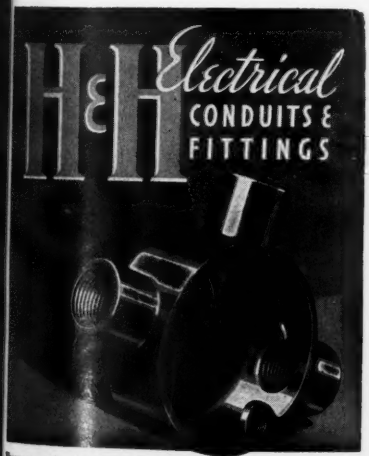

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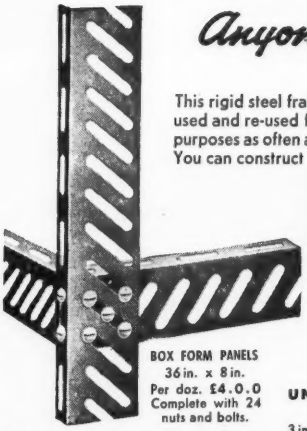

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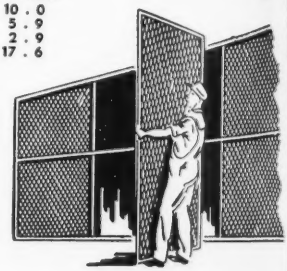

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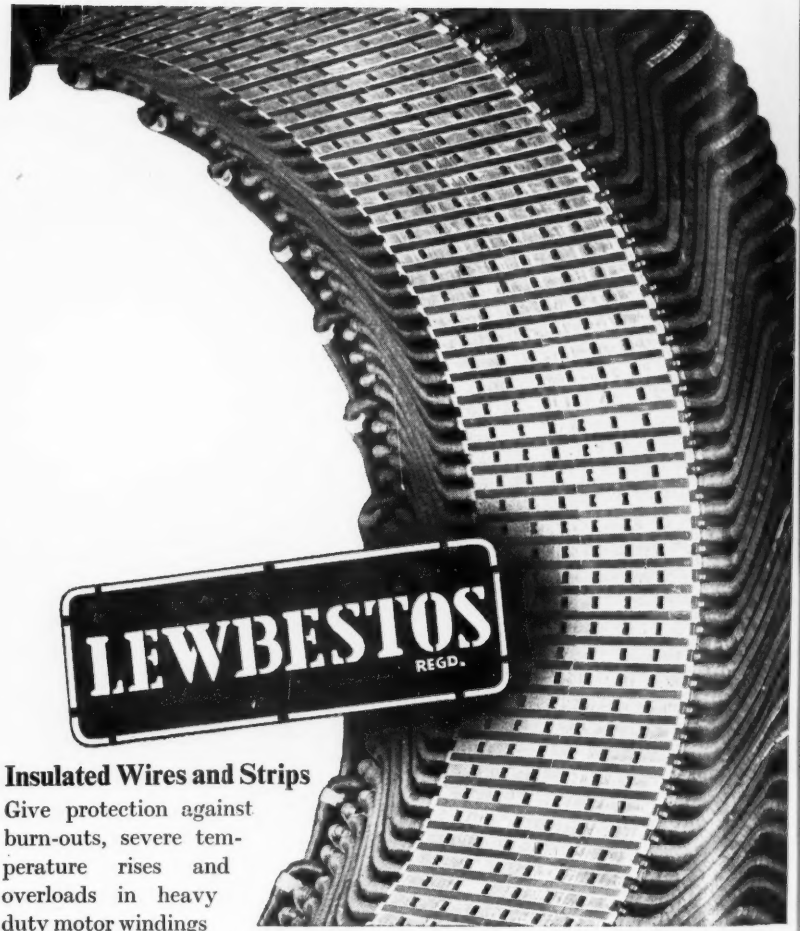

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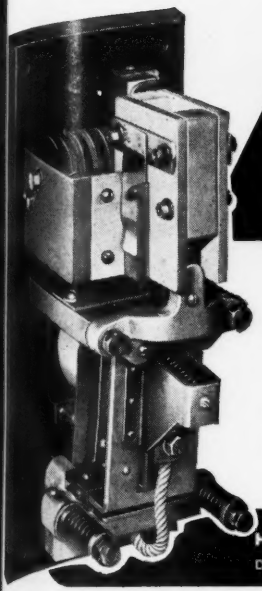

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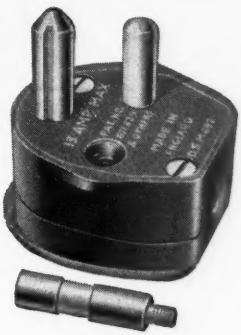

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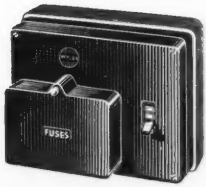

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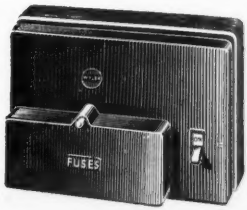

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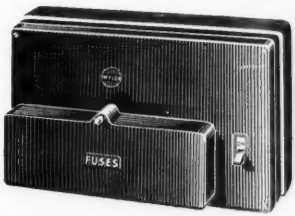

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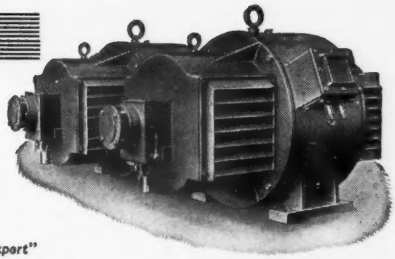

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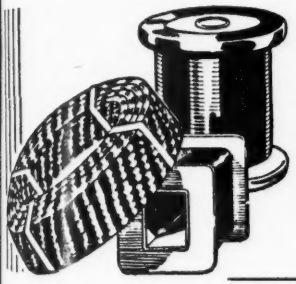

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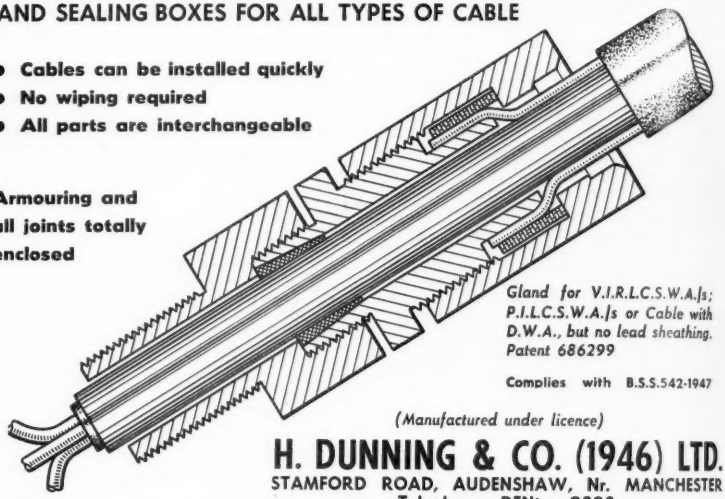

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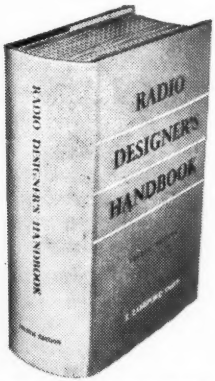

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Staines Road, Hounslow, A.315

Street Lighting Improvement

THE Borough Council invite tenders for the installation of new street lighting to Group A standard along a section of the Staines Road, Hounslow, for a distance of approximately 1,600 yards.

The works include:—

(a) Taking down of existing columns and lanterns.
(b) Supply and erection of 49 steel columns; and
(c) Supply and fitting of 49 lanterns containing 3/80-watt, 5-ft. fluorescent tubes, together with the necessary control gear.

Specification, bills of quantities and forms of tender can be obtained from, and the drawings and conditions of contract inspected at, the office of the Borough Engineer and Surveyor, 88, Lampton Road, Hounslow, on payment of a deposit of two guineas, which will be refunded on receipt of a bona fide tender not subsequently withdrawn.

Tenders, enclosed in a plain sealed envelope endorsed "Staines Road Street Lighting," but bearing no indication of the name or address of the sender, must be delivered to the undersigned not later than 10 a.m. on Friday, 10th July, 1953. The Council do not bind themselves to accept the lowest or any tender.

HAROLD SWANN,
Town Clerk.

Council House,
Hounslow. 5647

ROTHWELL (YORKS) URBAN DISTRICT COUNCIL

Proposed Street Lighting, Haigh Road and Oakwood Drive, Rothwell

TENDERS are invited for the provision and erection of 34 Sodium Vapour Street Lighting Units with pre-stressed concrete columns on the Haigh Road and Oakwood Drive Estates.

Plans may be seen and conditions of contract, specification and bill of quantities obtained upon application to the Engineer and Surveyor on deposit of two guineas, which will be returned on receipt of a bona fide tender not subsequently withdrawn.

Tenders to be enclosed in plain sealed envelopes endorsed "Street Lighting, Haigh Road and Oakwood Drive Estates," and returned not later than 9 a.m. on Wednesday, the 8th July, 1953, to the undersigned.

The Council do not bind themselves to accept the lowest or any tender.

ALLEN T. S. ROBERTSON,
Clerk of the Council.

Civic Buildings,
Rothwell, Nr. Leeds.
12th June, 1953. 5697

COUNTY BOROUGH OF BOOTLE

County Grammar/Technical School for Boys

THE Education Committee invite tenders for the Electrical Installation in the above school, on the New Park Farm Site, Bridge Lane, Netherton.

Forms of tender, specification, conditions of contract, drawings, etc., are obtainable from the Borough Surveyor, Town Hall, Bootle.

Last date for receipt of tenders 10 a.m. 2nd July, 1953.

HAROLD PARTINGTON,
Town Clerk. 5664

SITUATIONS VACANT

The engagement of persons answering these advertisements must be made through the Local office of the Ministry of Labour and National Service, etc., if the applicant is a man aged 18-64 or a woman aged 18-59 inclusive, unless he or she or the employer is excepted from the provisions of The Notification of Vacancies Order, 1952.

YORKSHIRE ELECTRICITY BOARD

APPLICATIONS are invited for the following appointments:—

No. 5 (Wakefield) Sub-Area

CASTLEFORD DISTRICT: CONSUMERS' ENGINEER. Applicants, who must have had a sound practical training and considerable experience in the work of a consumers' engineer, will be required to give advice to all classes of consumer concerning the utilisation of electricity.

Experience is required in negotiations for supply; the interpretation and application of the I.E.E. Wiring Regulations and other regulations concerned with the testing and inspection of consumers' installations; tariffs; sales development; the control of staff and manual workers.

Salary N.J.B. Class E, Grade 8, £619/£629 p.a.

DONCASTER DISTRICT: GENERAL ASSISTANT DISTRICT ENGINEER. Applicants should preferably be Graduate Members of the Institution of Electrical Engineers and have experience in the construction, operation and maintenance of overhead and underground distribution systems. Applicants should be prepared to reside in the district and undertake standby duites.

Salary N.J.B. Class F, Grade 11, £548/£565 p.a.

Applications, giving full details of age, qualifications and experience, should be forwarded to the Manager, No. 5 (Wakefield) Sub-Area, Yorkshire Electricity Board, 1a, Denby Dale Road, Wakefield, not later than 9th July, 1953.

No. 1 (Bradford) Sub-Area

KEIGHLEY DISTRICT: GENERAL ASSISTANT DISTRICT ENGINEER. Applicants should have passed the Graduate Membership examination of the Institution of Electrical Engineers or hold other acceptable technical qualifications; they should have experience in construction, operation and maintenance of complete high and medium voltage overhead and underground distribution systems. Candidates must be prepared to reside within the district and undertake standby duties, if required.

Salary N.J.B. Class E, Grade 11, £524/£540 p.a.

Applications, giving full details of age, qualifications and experience, should be forwarded to the Manager, No. 1 (Bradford) Sub-Area, Yorkshire Electricity Board, 45-53, Sunbridge Road, Bradford, not later than 9th July, 1953. 5679

SOUTH WALES ELECTRICITY BOARD

SENIOR ASSISTANT (Industrial Supply) required in Commercial Department of the Board at its Head Office, St. Mellons. Duties involved include the negotiation of important supplies to industry, the general development of the industrial load and advice to industrial consumers upon the utilisation of electricity.

Salary in accordance with Class AX/CX, Grade 1 (£970/£1,166) of N.J.B. Schedule.

Applications, stating age, present position and salary, qualifications and experience, and giving three referees, to be addressed to the Secretary to arrive by 4th July, 1953.

D. G. DODDS,
Secretary.

St. Mellons,
Cardiff. 5698

BRITISH ELECTRICITY AUTHORITY

East Midlands Division

APPLICATIONS are invited for the following positions within the Division:—

CIVIL ENGINEERING DRAUGHTSMEN, CONSTRUCTION DEPARTMENT (Vacancy No. 22/53). Candidates should have experience in design and detail of reinforced concrete structures, piled and slab foundations for heavy plant, culverts, cable subways, etc., for general building construction drainage and sanitation schemes, associated with office and administrative buildings.

The salary will be in accordance with Grade 5 (£567-£671 per annum) or Grade 6 (£433-£567 per annum) of Schedule D of the National Joint Board Agreement.

Closing date for this appointment will be 30th June, 1953.

ENGINEERING DRAUGHTSMEN (MECHANICAL), CONSTRUCTION DEPARTMENT (Vacancy No. 44/53). Senior Draughtsmen are required in the Mechanical Section of the Construction Department at North Wilford Power Station. Candidates should have experience in one or more of the following:—

(i) Design and layout of power station equipment, including turbo-alternators, boiler plant, coal and ash plant, and general station auxiliaries.
(ii) H.P. and L.P. steam and feed pipework. Condensing plant and feed heating systems.
(iii) Conveyor plant, coal handling systems and material handling of station auxiliary equipment.

Salary and conditions of service will be in accordance with the National Joint Board Agreement, Grade 5 (£567-£671 per annum) and Grade 6 (£433-£567 per annum) of Schedule D, according to experience.

Closing date for this appointment will be 30th June, 1953.

JUNIOR ENGINEER, HINCKLEY POWER STATION (Vacancy No. 58/53). Candidates should have gained an Ordinary Certificate in Electrical Engineering and have had experience in a power station.

The salary will be in accordance with Schedule A, Class B, Grade 13 (£390 per annum) progressing to Class B, Grade 12 (£404-£423 per annum) of the National Joint Board Agreement.

Closing date for this appointment will be 6th July, 1953.

ENGINEERING DRAUGHTSMEN (ELECTRICAL), CONSTRUCTION DEPARTMENT (Vacancy No. 61/53). Candidates should have experience in the preparation of layouts and diagrams for the installation of E.H.T. and L.T. switchgear, transformers, E.H.T. and L.T. cables; knowledge of protective gear systems would be an advantage.

The salary will be in accordance with Grade 5 (£567-£671 per annum) or Grade 6 (£433-£567 per annum) of Schedule D of the National Joint Board Agreement.

Closing date for this appointment will be 29th June, 1953.

SHIFT CONTROL ENGINEER, LONGFORD POWER STATION, COVENTRY (Vacancy No. 62/53). Applicants should have had a sound training and practical experience in a modern power station. The possession of technical qualifications is desirable.

Salary will be in accordance with Class G, Grade 10 (£608-£630 per annum) of the National Joint Board Agreement.

Closing date for this appointment will be 1st July, 1953.

ASSISTANT SHIFT CHARGE ENGINEER, BURTON-ON-TRENT POWER STATION (Vacancy No. 63/53). Applicants should have had sound technical training and practical experience in operation and control of power stations, and should preferably have the Higher National Certificate in Electrical and Mechanical Engineering.

The salary for this appointment will be in accordance with Class E, Grade 9 (£587-£600 per annum) of the National Joint Board Agreement.

Closing date for this appointment will be 1st July, 1953.

MAINTENANCE ENGINEER (ELECTRICAL), FREEMEN'S MEADOW POWER STATION, LEICESTER (Vacancy No. 66/53). Applicants should have a sound knowledge of modern power station equipment, including air blast switchgear, large alternators and P.F. auxiliaries. Corporate Membership of the Institution of Electrical Engineers is desirable.

Conditions of service and salary in accordance with the N.J.B. Schedule A, Class H, Grade 6 (£833-£866 per annum).

Closing date for this appointment will be 7th July, 1953.

DEPUTY POWER STATION SUPERINTENDENT, DERBY POWER STATION (Vacancy No. 67/53). Applicants should preferably be Corporate Members of the Institution of Electrical Engineers and/or the Institution of Mechanical Engineers, and experience of pulverised fuel firing will be an advantage.

A wide knowledge of the operation and maintenance of a modern generating station and sound administrative ability are essential.

The salary will be in accordance with Class F, Grade 3 (£912-£951 per annum) of the National Joint Board Schedule.

Closing date for this appointment will be 7th July, 1953.

GENERAL ASSISTANT ENGINEER, TECHNICAL DEPARTMENT, DIVISIONAL HEADQUARTERS (Vacancy No. 49/53). The minimum technical qualification required is the Higher National Certificate in Electrical Engineering. Preference will be given to candidates who have completed a recognised postgraduate apprenticeship, and experience of high-voltage switchgear and protective gear will be an advantage.

The successful candidate will be required to reside at or near Nottingham or Leicester.

The salary will be in accordance with Schedule C, Class AX/DX, Grade 8 (£501-£694 per annum) of the National Joint Board Agreement. The commencing salary will depend on qualifications and experience.

Closing date for this appointment will be 6th July, 1953.

The above appointments will be pensionable within the provisions of the British Electricity Authority and Area Boards Superannuation Scheme.

Applications should be submitted on the official form which may be obtained from the Divisional Establishments Officer, British Electricity Authority, Barker Gate, Nottingham, and should be returned to the undersigned by the dates stated. Please quote vacancy number.

L. F. JEFFREY,
Divisional Controller. 5705

BRITISH ELECTRICITY AUTHORITY

London Division

APPLICATIONS are invited for the following superannuable posts. Salary, including London allowance, and conditions of service in accordance with N.J.B. Agreement, Schedule A. Qualifications entitling to Graduate Membership of the I.E.E. or I.Mech.E. unless otherwise stated.

(1) STATION SUPERINTENDENT, WIMBLEDON GENERATING STATION.
(2) STATION SUPERINTENDENT, HAMMERSMITH GENERATING STATION.

Qualifications: Corporate Membership of I.E.E. or I.Mech.E. Candidates must possess good administrative, organising and managerial abilities and have experience of labour relations. A thorough practical and technical training with power station operation and maintenance experience is essential.

Salary: (1) Class E, Grade 1 = £1,072 p.a.
(2) Class D, Grade 1 = £1,017 9s. p.a.

ASSISTANT ENGINEER (ELECTRICAL), BARKING A & B GENERATION STATION. Previous experience of maintenance of electrical plant and equipment, preferably at modern power station. Salary Class M, Grade 11 = £793 16s. p.a.

FIRST ASSISTANT STATION CHEMIST, BRUNSWICK WHARF GENERATING STATION. Qualifications: University degree or the A.R.I.C. Diploma by examination. Experience in the analysis and testing of water, fuels and mineral-based oils coupled with an interest in plant operation is desirable. Salary Class H, Grade 9 = £714 p.a.

Application may be made on form obtainable from Divisional Secretary, B.E.A., London Division, Generation House, Great Portland Street, London, W.1, and should be received within 14 days of this advertisement. 5689

EASTERN ELECTRICITY BOARD

Chilterns Sub-Area

General Assistant Engineer, Northwood District

CANDIDATES should have had a sound training in electrical engineering and experience of the construction, operation and maintenance of L.V. and H.V. underground systems including substations.

The salary for the appointment will be in accordance with Class E, Grade II, of the National Joint Board Salary Agreement, commencing at £524 p.a., plus London weighting. Both future salary and conditions of service will be in accordance with agreements made from time to time by the appropriate negotiating bodies.

The successful candidate will be required to contribute to a Superannuation Scheme and may be required to undergo a medical examination.

Applications by letter, stating age, education, qualifications and experience, with details of present appointment and salary, should be submitted to the District Manager, Northwood, Eastern Electricity Board, 1, Love Lane, Pinner, Middlesex, within 14 days of the appearance of this advertisement. 5700

GOVERNMENT OF QATAR (PERSIAN GULF)

Electrification of Doha

Power Station Engineer

APPLICATIONS are invited for the above appointment. Candidates must have served a mechanical engineering apprenticeship, and have considerable practical experience of the erection, operation and maintenance of diesel engine alternator sets and ancillary equipment, H.V. and L.V. switchgear, and be capable of training local labour. A knowledge of cable and overhead line work would be an advantage.

Salary £140 to £150 per Arabic month, according to qualifications and experience, payable in Rupees (Rs. = 1s. 6d.), and is at present free of tax. Appointments are for a period of 5 years, terminable by three months' notice on either side.

Free air passages are provided for the officer and his family on first appointment, on termination of agreement, and for leave to the United Kingdom. Free quarters with part furnishings, water and light, and medical attention will be provided.

Leave is earned at the rate of 90 days per year of resident service, and may be accumulated. Earned leave to the United Kingdom may be taken after 18 months' service.

A knowledge of Arabic would be an advantage.

Applications endorsed "Power Station Engineer, Qatar," stating age, qualifications and experience, should be forwarded within 21 days of the date of this advertisement to the undersigned, who will communicate with candidates selected for further consideration.

PREECE, CARDEW & RIDER.
4/10, Queen Anne's Gate,
Westminster, London, S.W.1. 5648

City of Birmingham Education Committee

GARRETTS GREEN BRANCH TECHNICAL COLLEGE

Garretts Green Lane, Birmingham, 33

Principal: B. C. Whitehouse, B.Sc., A.R.I.C.

APPLICATIONS are invited for a full-time post of ASSISTANT, Grade B, in Electrical Engineering, at this new Branch Technical College opening in September. The person appointed will be required to take Ordinary National Certificate work in Electrical Engineering, including the ancillary subjects of Mathematics and Engineering Science. He will also be required to assist with subjects of the City and Guilds Electrical Installation course, especially Electro-technology. Ability to assist with the City and Guilds Radio Service and Telecommunications courses would be an advantage.

Salary in accordance with the Burnham (Further Education) Scale for Assistants, Grade B, £490 × £25 to £765 (men), with additions for graduate or equivalent qualification and training where applicable. In fixing the commencing salary allowance would be made for teaching and approved industrial experience.

Further particulars and application form may be obtained from the Principal, to whom completed applications should be returned within two weeks of the appearance of this advertisement.

E. L. RUSSELL,
Chief Education Officer.
5680

GOVERNMENT OF KUWAIT

ELECTRICAL MAINTENANCE ENGINEER required for service with the Government of Kuwait, Persian Gulf. Applicants, preferably not more than 35 years of age, should have some technical qualifications and good electrical engineering training, and subsequent experience with switchgear and the various protective relays, transformers, cabling and electrical machinery. Steam and power plant and diesel plant operating experience would be an advantage.

The starting consolidated salary offered is at the rate of £1,500 to £1,600 per annum according to qualifications and experience. Free furnished quarters and free medical attention are provided or an allowance in lieu thereof. The first year will be probationary and, if satisfactory, home leave will be granted at the end of three years' complete service. Married accommodation cannot be promised within one year.

Applications stating age and giving full details of qualifications and experience should, in the first instance, be addressed to the Secretary, Ewbank & Partners Limited, 10/11, Grosvenor Place, London, S.W.1. 5531

JUNIOR ASSISTANT ELECTRICAL ENGINEER

required for service with the SUDAN LIGHT & POWER COMPANY LIMITED in Khartoum (Anglo-Egyptian Sudan.

Salary range £E.900/£E.1,380 (£E.1 = £1 0s. 6d.).

Applicants should have had a sound general education; have served an apprenticeship or undergone practical training suitable to the industry; and be graduates of the Institution of Electrical Engineers. They should also have experience in the distribution side of electricity supply undertaking; and be able to carry out, under the supervision of the Electrical Engineer, works in connection with the construction, maintenance and operation of H.V. and L.V. overhead and underground mains and substations. Knowledge of electrical generating plant and associated switch and control gear would be of advantage.

Appointment will be on contract for 5 years, including a period of 12 months' probation, with a bonus payable on completion of the contractual period. A cost-of-living allowance will be payable in addition to salary. A kit allowance of £E.50 will be payable on appointment. Free living accommodation with basic furniture or an allowance in lieu thereof and free transport will be provided. After satisfactory completion of the probationary period liberal leave on full salary with free passages. There is at present no income tax in the Sudan.

Applications, stating age, education, qualifications, experience (with particulars of posts held), present appointment and salary, with names of two references, should be submitted to the Secretary, The Power & Traction Finance Co. Ltd., Queens House, Kingsway, London, W.C.2. 5668

ROYAL NAVAL COLLEGE

Greenwich, London, S.E.10

Lecturer in Physics and Electrical Engineering Dept.

APPLICATIONS are invited for appointment in September, 1953, or as soon after as possible. The post is open to men only who must be British subjects and should have a 1st or 2nd Class Honours Degree in Physics or Electrical Engineering or equivalent qualifications. Familiarity with the design of electrical machinery is essential. Experience in electronics, electrical engineering practice or radio engineering is desirable.

Appointment will be as Junior Lecturer (salary £400 to £650) or as Senior Lecturer (£750 to £950) according to age, qualifications and experience. A pay addition (approximately 10% of the first £500 of salary and 5% of balance) will also be allowable. In certain circumstances a starting salary above the minimum may be authorised. Advancement to higher posts is possible. Consideration would be given to secondment for agreed period of serving member of Scientific Civil Service.

Letters of application, accompanied by names of three referees and statement of qualifications and previous experience, to be sent as soon as possible to Director of Studies, R.N. College, Greenwich, London, S.E.10, from whom further particulars may be obtained. Closing date for applications is 4th July, 1953. 5678

BRITISH ELECTRICITY AUTHORITY

South West Scotland Division

Shift Charge Engineer, Braehead Generating Station

A SHIFT CHARGE ENGINEER is required at Braehead Generating Station for which the salary will be within the range £772 to £802 per annum, this being in Class H, Grade 7 of the National Joint Board Schedule. The position is superannuable.

Applications on Form AE6, which may be obtained from the Authority's Headquarters or from any Divisional Office of the Authority, should be forwarded to the Divisional Secretary, 168, Broomhill Drive, Glasgow, W.3, before 15th July, 1953. 5703

LONDON COUNTY COUNCIL

Architect's Department

TECHNICAL ASSISTANT in Electrical and Mechanical Engineering Section. Salary scale rising to £696 a year. Should be Graduate or Associate Member of recognised professional body and have experience of modern electrical and mechanical installations in large buildings. Experience in heating and ventilating also advantage.

Apply by 31st July, on form obtainable with further particulars from Architect (AR/EX/E & ME/2), County Hall, S.E.1 (663). 5701

CITY OF LIVERPOOL EDUCATION COMMITTEE

College of Technology, Byrom Street, Liverpool, 3

APPLICATIONS are invited for the appointment of ASSISTANT, GRADE B (full-time), Department of Electrical Engineering. Duties to commence 1st September, 1953, or as soon after as possible.

Salary (men): £490 × £25 to £765 plus appropriate allowances for training and qualifications. Increments allowed for industrial experience.

Applicants should possess graduate qualifications in electrical engineering, preferably a university degree including heavy current work. Industrial experience and some teaching practice is desirable. The ability to teach mathematics and physics to engineering students would be an advantage.

Application forms and further particulars from H. S. Magnay, M.A., Director of Education, 14, Sir Thomas Street, Liverpool, 1. Completed forms should be returned to him within fourteen days of the appearance of this advertisement.

THOMAS ALKER,
Town Clerk and Clerk to the
Local Education Authority.
(JA.3239) 5635

ADMIRALTY

TEMPORARY PRODUCTION INSPECTORS required for various places in U.K. Most vacancies require experience in marine engineering and allied industries, but some exist for electrical, electronic and mechanical engineers. Duties include production methods, inspection, test, installation, and the preparation of technical handbooks.

Candidates, who should be at least 25, should have recognised engineering apprenticeship or equivalent training plus at least three years' relevant experience in industry or Government service; H.N.C. or equivalent, but O.N.C. or equivalent considered; ex-Service personnel with appropriate training and experience are eligible to apply. Appointments are unestablished but opportunities later may occur to compete for permanent posts.

Salary scale £570 by £20 to £675 p.a.; entry at minimum less £20 for each year by which the age falls short of 30, plus 10% on the first £500 and 5% on the next £500 or part thereof. Salaries outside London are a little lower.

Application forms from M.L.N.S., Technical & Scientific Register (K), 26, King Street, London, S.W.1, quoting D33/51A. 5634

SIGNALS ASSISTANT INSPECTORS OF POLICE
(Supernumerary)

required by the GOVERNMENT OF KENYA for one tour of two years with possible extension. Commencing salary, etc., according to previous experience in scale £767 rising to £1,092 a year. Gratuity (at least £162 after two years' service) payable on satisfactory final completion of service. Outfit allowance £30. Uniform allowance £10 a year. Free passages. Liberal leave on full salary.

Candidates, aged 20-30, should be at least 5' 7" without footwear, have normal vision without glasses, and be of good education. They should possess a sound knowledge of the installation and maintenance of modern low and medium powered V.H.F., static and mobile equipment, H/F transmitters and receivers, petrol generators and diesel electrical sets. Candidates with previous United Kingdom or Colonial Police experience will be considered up to 35 years of age.

Write to the Crown Agents, 4, Millbank, London, S.W.1, stating age, name in block letters, whether married or single, full qualifications and experience, and quoting M1/32820/EF. 5633

SOUTH EASTERN ELECTRICITY BOARD

TWO ASSISTANT ENGINEERS (Substation), Orpington Capital Substation. Salary £577-£598 plus London weighting under N.J.B. Schedule, Class F, Grade 10. Superannuable. A sound technical training is essential and preference will be given to persons with practical experience in the operation of a large substation involving transformation from 66 to 33 kV and 33 to 11 kV, having some knowledge of protective gear, and who are conversant with the operation of interconnected systems. The appointment involves shift duties.

Applications on forms obtainable from T. A. D. Honnor, M.I.E.E., Croydon & West Kent Manager, SEEBoard, Electric House, Wellesley Road, Croydon, Surrey, to be returned, giving 2 referees, by 7th July, 1953.

A. L. BURNELL,
19th June, 1953. Secretary. 5702

BRITISH ELECTRICITY AUTHORITY

South Eastern Division

ASSISTANT SHIFT CHARGE ENGINEER, CROYDON B POWER STATION. Applicants should preferably possess technical qualifications equivalent to Graduate Membership of either the Institution of Mechanical or Electrical Engineers. Experience in the efficient operation of modern high-pressure power station plant with P.F. firing and experience in the administration and control of labour essential. N.J.B. conditions of service and salary, Class J, Grade 9, £754 19s. per annum, including London allowance.

Applications, giving details of education, present position, experience, etc., should be received by the Station Superintendent, Croydon B Power Station, Beddington Farm Lane, Purley Way, Croydon, Surrey, not later than 4th July. 5688

BRITISH ELECTRICITY AUTHORITY

South Eastern Division

ASSISTANT ENGINEER (Handling), CROYDON B POWER STATION. Applicants, who should possess a knowledge of coal storage and its associated problems, will be responsible for the operation of the coal and ash handling plant and associated equipment, including mobile equipment. Experience in the control of labour is essential. N.J.B. conditions of service and salary, Class J, Grade 12, £625 16s. per annum, including London allowance.

Applications, giving details of education, present position, experience, etc., should be received by the Station Superintendent, Croydon B Power Station, Beddington Farm Lane, Purley Way, Croydon, Surrey, not later than 4th July. 5687

MERSEYSIDE AND NORTH WALES ELECTRICITY BOARD

FIRST ASSISTANT DISTRICT COMMERCIAL OFFICER required in the No. 2 Sub-Area (Runcorn District). Salary £791-£818 per annum (N.J.B. Class F, Grade 5).

Applicants should have had considerable experience on the commercial side of the electricity supply industry, including the supervision of contracting work. Membership of the Institution of Electrical Engineers advantageous.

The appointment is superannuable and subject to medical examination.

Standard application forms obtainable from the Manager, No. 2 Sub-Area, Electricity House, Sandiway, near Northwich, Cheshire. Closing date 6th July, 1953. 5681

SOUTH WALES ELECTRICITY BOARD

DISTRICT COMMERCIAL MANAGER required for District 347 (Cardiff East) in the Central Sub-Area. Applicants must have had experience in the application of electricity in all its branches; negotiation of supplies, public lighting and contracting.

Salary in accordance with Class G, Grade 3 (£971-£992/£1,014) of N.J.B. Schedule.

Applications, stating age, present position and salary, qualifications and experience, and giving three referees, to be addressed to the Secretary to arrive by 4th July, 1953.

D. G. DODDS.
St. Mellons, Secretary.
Cardiff. 5699

BRITISH ELECTRICITY AUTHORITY

SENIOR COMMERCIAL ASSISTANT required at Headquarters in London. Applicants should have extensive experience in the distribution and commercial activities and the general economics of the electricity supply industry. Preference will be given to chartered electrical engineers or those with engineering degrees. Salary according to qualifications and experience within provisional scale £1,175 × £50 to £1,475. Pension scheme.

Applications to D. Moffat, Director of Establishments, Winsley Street, London, W.1, by 13th July, 1953. Quote reference AE.390. 5721

VENNER LIMITED

require ELECTRICAL ENGINEER for development work on small generators. Degree or equivalent is essential. Salary in line with experience and qualifications. Applications to Personnel Manager, Venner Limited, New Malden, Surrey. 5724

BRITISH ELECTRICITY AUTHORITY

Midlands Division

FIRST ASSISTANT CONTROL ENGINEER required in System Operation Department, Divisional Headquarters, Birmingham. National Joint Board service conditions, superannuable appointment, commencing salary in accordance with Schedule C, Grade 5, £649-£790, ultimately rising to £883.

Higher National Certificate in Electrical Engineering or equivalent qualification required, together with sound practical training in connection with system operation and control. Generating station experience an advantage.

Application forms obtainable from Establishments Officer, 53, Wake Green Road, Moseley, Birmingham, 13, to be returned by 11th July, 1953. 5704

BRITISH ELECTRICITY AUTHORITY

North Western Division

VACANCY No. 137/53: DEPUTY POWER STATION SUPERINTENDENT at new Chadderton H.P. Generating Station, Nr. Oldham. Salary £971/£1,014 (G.3). Good technical qualifications and wide experience of operation, maintenance and administration of modern power plant essential.

Vacancy No. 138/53: MAINTENANCE ENGINEER (Mechanical) at new Chadderton H.P. Generating Station. Salary £787/£818 (G.6).

Apply to Establishments Officer, British Electricity House, 825, Wilmslow Road, Manchester, 20, quoting vacancy number, before 11th July. 5665

BRITISH ELECTRICITY AUTHORITY

South Eastern Division

JUNIOR ENGINEER (Control), CROYDON B POWER STATION. Applicants should preferably possess educational qualifications equivalent to Higher National Certificate, and should have had experience in the operation of E.H.T. switchgear and parallel running of alternators. Class J, Grades 18/14, commencing at £427 per annum, including London allowance. N.J.B. conditions of service.

Applications, giving details of present position, education, experience, etc., should be received by the Station Superintendent, Croydon B Power Station, Beddington Farm Lane, Purley Way, Croydon, Surrey, not later than 4th July. 5666

A LARGE industrial organisation has a vacancy for an electric draughtsman at their head office in London. Some knowledge of electrical circuits for power and lighting installations and electrical plant layout in factories is desired, also the theory connected with such installations. Age 22/26. Reply in the first instance, stating education, age, experience and salary required, to—Box A.M.7873, A.K. Advg., 212a Shaftesbury Ave., London W.C.2. 5649

A SENIOR electrical sales engineer is required by the General Electric Co. Ltd., Magnet House, Kingsway, London, W.C.2, for work concerned with light engineering equipment and with special reference to f.h.p. motors. A good technical background and sound sales experience are essential. Apply in writing to the Staff Manager, giving full details of age and experience. 5586

A VACANCY exists in the Witton Laboratories of the General Electric Company Limited, Witton, Birmingham, 6, for a development assistant in the fractional horsepower group. Applicants should possess a degree, Higher or Ordinary National Certificate in Electrical Engineering, and have had some experience in this work. Apply in writing, giving full particulars, to—The Staff Manager, General Electric Company Limited, Witton, Birmingham, 6. 5541

AN electrical salesman wanted, knowledge of television and radio an asset. Must be fully conversant with all domestic appliances. Full details, to—H. F. Truman, 40, Bridge Street, Walsall, Staffs. 9263

ARMATURE winder or improver required for repair work on small electric motors. Good opportunity and prospects. State age and experience.—Box 5636.

ASSISTANT mechanical maintenance engineer required for organisation in East London district operating large electrical station. Applicants should have wide and up-to-date experience in the maintenance of modern generating station power plant and be capable of supervising turbine and boiler overhauls. Technical qualifications should be sound. Age not less than 32 or over 45. Commencing salary £950 per annum, with non-contributory pension. Position has excellent prospects. Reply to Box 5637, quoting reference TME/6.

APPLICATIONS are invited by Vacuum Oil Company Limited for the position of shift charge engineer in their power station at Coryton refinery. The station consists of three oil and gas fired I.C.L. boilers operating at 650 p.s.i.g., 750° Fahrenheit m.c.r. each 180,000 lb. per hour, and three 5,000-kW Metro-Vickers double extraction condensing turbo-alternators extracting at 125 and 20 p.s.i.g. generating at 11.0 kV, 3-phase, 50 cycles. Allied to this there is water softening equipment consisting of hot lime pre-treatment, hot zeolite finishing of 500,000 lb. per hour capacity, with miscellaneous auxiliary equipment. Applications, giving full details of qualifications and experience, should be addressed to the Personnel Supervisor, Vacuum Oil Company Limited, Coryton Refinery, Coryton, Essex, and marked "C.I." 5691

ASSISTANT station superintendent wanted by public utility (affiliate of American & Foreign Power Co. Inc., New York) for 30,000-kW steam station now under construction at Carioba, Sao Paulo, Brazil (which place has a healthy, mild climate). Applicants should have had at least five years' experience in the operation of plant of 400 p.s.i. or above, be familiar with the "Hagan" control system, feed water treatment and switchboard operation, and possess technical qualifications to Corporate Membership of the Institutions of Electrical or Mechanical Engineers. Applicants should be aged 28-35, preferably married. New house supplied, liberal salary, first class passages for family out and home, and home leave with full pay every three years. Reply stating briefly qualifications, experience and age. Application form will be forwarded.—Box 9297.

ASSISTANT works chemist required by cable manufacturers in London area. Should possess wide experience in plastic technology, cable design and specifications, and be acquainted with modern methods of production and equipment. Reply with full details and salary required, to—Box 5504.

BOYS wanted to learn electrical trade. London. Write stating age, to—Box 5707.

BRUCE PEEBLES & Co. Ltd., Edinburgh, have vacancies in their rotating plant sales department for two inside sales engineers, one each for tenders and contracts. Applications are invited stating age, experience and salary required, to Mr. W. B. Laing, Director & Joint General Manager, at the above address. 5708

DECCA RADAR Limited require draughtsmen and junior draughtsmen for research drawing office, preferably experienced in any of the following fields: radar, radio and electronic circuits, electro-mechanical devices, light mechanical engineering. Knowledge of workshop practice essential, applicants must possess Ordinary National Certificate or equivalent. Positions permanent and progressive, salaries based on A.E.S.D. rates. Write, giving full details, to Chief Draughtsman, Decca Radar Ltd., 2, Tolworth Rise, Surbiton, Surrey. 146

DESIGN draughtsman capable of working on own initiative required for work of an interesting and varied nature. Apply stating experience, qualifications and salary required to—The Personnel Officer, Cooke & Ferguson Ltd., Victoria St., Openshaw, Manchester 11. 5692

DESIGNER-draughtsmen required with experience in the specialised field of electric wiring accessories. Good salary offered to men with this experience. Write in confidence, stating age, experience and salary required, to — G.W.M., M.K. Electric Ltd., Wakefield Street, Edmonton, London, N.18. 5543

DEVELOPMENT engineer, aged 24/35, required by organisation in Lancashire for laboratory work in connection with quartz and synthetic crystal design and manufacture. Applicants should have a degree in physics or electrical engineering, or Higher National Certificate, or equivalent. Previous industrial experience and knowledge of high-frequency radio circuit technique will also be an advantage. The post available is permanent, with contributory pension fund, and full staff status. Applicants are invited to write, giving full details of their qualifications, age and experience, to—Box 214, Dorland Advertising Ltd., 18/20, Regent Street, London, S.W.1. 5650

DRAUGHTSMAN (electrical) required with some knowledge of mechanics for old-established engineering company in South London. Manufacturers of light and medium machinery. Holiday arrangements acknowledged. Canteen facilities; 5-day week. Progressive pensionable position. Write fully, stating age, experience and salary required, to—Box 5682.

DRAUGHTSMAN required for North London, experienced in electrical and mechanical equipment. State age, experience and salary required to—Box 5453.

ELECTRICAL contractors require general manager. Substantial firm offers exceptional opportunity to qualified man with thorough knowledge of the industry. One used to dealing with architects and engineers. Manufacturing experience of interest but not essential. Write in strict confidence to—Box 5490.

DRAUGHTSMEN: The English Electrical Co. Ltd., at Liverpool, have vacancies for electrical draughtsmen with good experience of switchgear wiring diagram work. Pensionable and progressive positions with excellent opportunities for promotion are offered to men with initiative. Write, quoting ref. 140D, to—Central Personnel Services, English Electric Company Ltd., 336/7, Strand, London, W.C.2. 5488

ELECTRICAL contractors require branch manager. Exceptional opportunity to qualified man with thorough knowledge of the industry; one used to dealing with architects and engineers. Vacancy Southern Ireland. Fullest confidence to applicant.—Box 5683.

ELECTRICAL draughtsman required for large Sheffield steelworks. Experience is desirable, but not essential, in the preparation of wiring diagrams, shop layouts for lighting, heating and service trenchwork, and to be capable of taking measurements on site and preparing cable plans and schedules, together with general service records. Apply, stating age and details, to—The Labour Superintendent, Samuel Fox & Co. Ltd., Stocksbridge Works, Near Sheffield. 5669

ELECTRICAL engineer required by electrical contracting firm inner London. Extensive experience estimating and supervising essential. Apply in confidence, stating salary required, to—Box 9290.

ELECTRICAL engineer required for factory in London area. Must have served practical apprenticeship and preference given to A.M.I.E.E., City and Guilds, or Higher National. Write stating age, experience and salary required, to—Box 5709.

ELECTRICAL engineering draughtsman required by Tees-side firm of engineers for the power and lighting installations of their various contracts. The work will include the preparation of control schemes and wiring diagrams and contract requisitioning of equipment. Apply stating age, experience and qualifications to—Box 5651.

ELECTRICAL inspector required as chargehand of coil winding inspection. Write, stating age, experience, qualifications and salary required, to—The Personnel Officer, Oliver Pell Control Limited, Cambridge Row, Burrage Road, Woolwich, London, S.E.18. 5638

ELECTRICAL manufacturers North Birmingham district require development engineer. Must be experienced in motor control gear design enquiry analysis and service and technical correspondence.—Box 5652.

ELECTRICIAN required for Middle East, experienced in use of conduit, Pyrotenax, earthing, etc. State age, experience, with copies of references of names to whom we may apply, to—Box 5711.

ELECTRICIANS wanted, London contractor, must have served apprenticeship. Good prospects. Write stating age and experience, to—Box 5706.

ENGINEER required in London office for estimating and tendering for L.V. and H.V. switchgear. Write stating age, experience, salary required, etc., to—Sales Manager, J. G. Statter & Co. Ltd., 82, Victoria Street, London, S.W.1. 5710

ESTIMATING engineer required for battery traction sales. Electrical degree or Higher National Certificate essential. Previous experience in similar job an advantage but not essential. Age not over 30. Permanent post carrying pension for suitable applicant. Apply by letter in first instance, outlining experience and salary desired, to—Commercial Manager, Nife Batteries, Redditch, Worcs. 5670

ESTIMATING engineer required with sound transformer experience and experience in export market. Senior man wanted. Good salary for this important position and pension scheme. Apply stating salary required to—Brentford Transformers Ltd., Kidbrooke Park Road, Kidbrooke, London, S.E.3. 5551

EWBANK & PARTNERS Ltd. have vacancies for mechanical engineering draughtsmen experienced in power station design and layout, pipework layout, circulating water system, and with some knowledge of coal and ash handling plants. The positions are permanent and are pensionable. Free lunches are provided and a five-day week is in operation. Applicants should write in the first instance, stating age, details of experience and salary required, to—The Secretary, Ewbank & Partners Ltd., Engineering Consultants 10/11 Grosvenor Place, London S.W.1. 5427

HOUSECRAFT adviser and cookery demonstrator with first-class experience and training is required at the Manchester branch of the G.E.C. Preference will be given to applicants with E.A.W. Certificate and experience of demonstrating electrical equipment. Applications, in writing, should give full details of age and record, and be sent to the Staff Manager, General Electric Co. Ltd., Magnet House, Kingsway, London, W.C.2, quoting ref. MB/2. 5671

JOINTER, first-class H.T. plumber cable, required by large London firm electrical engineers. Write, age, experience.—Box 5506.

JOINTER, H.T., first-class plumber cable, required by large firm electrical engineers. Write age, experience. —Box 5589.

JOINTER required for 11-kV cable jointing in Cheshire and Lancashire on Air Ministry contract. Apply—F. H. Wheeler & Co. Ltd., Regal Buildings, Oxford Road, Manchester, 1. 9292

JOINTERS and jointers' mates required for telephone cable contracts. Good wages, out allowance and pension scheme. Apply in writing to—Telecommunications Dept., Pirelli-General Cable Works Ltd., Eastleigh, Near Southampton. 246

JOSEPH LUCAS Ltd. require several senior designers and also detail draughtsmen for their design drawing office for interesting work associated with the development of automobile electrical equipment. It is desirable that the designers should be at least of H.N.C. standard, and experience in the design of light electrical equipment for large quantity production would be an advantage. The post provides excellent scope for initiative and advancement, and the salary for really good men will be on a high level. Apply, stating qualifications, experience and age, quoting PM/D/55, to — Personnel Manager, Joseph Lucas Ltd., Great King Street, Birmingham. 143

JUNIOR civil engineers required for contracts in London and Provinces. Permanent positions for suitable applicants. Write, giving details of age, experience and salary, to—P. Lowery & Sons Ltd., 271, High Street, London, W.3. 5712

JUNIOR engineer required for sales office of temperature control engineers. Write giving age, training and experience to—DHS, c/o The Rheostatic Co. Ltd., Slough, Bucks. 5590

LABORATORY assistants for the development of instruments, meters and relays. University degree or Higher National Certificate standard required. Apply in writing, stating age, experience and salary required, etc., marking envelopes "Meter Engineer," to — Personnel Manager, Metropolitan-Vickers Electrical Co. Ltd., Trafford Park, Manchester, 17. 176

LARGE London electrical wholesalers require fully experienced storekeeper, salary £450/£550 p.a. according to qualifications. Superannuation scheme. Apply—Box 5381.

LEADING transformer manufacturer requires energetic engineer as representative in Birmingham and Midlands area. Applicant, who must have experience in the trade, will receive short initial training at company's works in London. Good salary offered.—Box 5552.

LIFTS. Young engineer required for estimating department. Previous lift experience essential. Five-day week. Write—Marryat & Scott Ltd., Wellington Works, Hounslow, Middx. 5454

LONDON TRANSPORT require technical assistants for drawing office on layout and project works for new installations at generating stations and traction substations or in connection with the maintenance and operation of a railway electric traction supply system. Salary rising to £579 subject to satisfactory service, with additional payments for certain recognised qualifications; medical exam.; contributory superannuation scheme after probation. Applications within 14 days to Staff Officer (F/EV 239), London Transport, 55, Broadway, London, S.W.1. For acknowledgement enclose addressed envelope. 5653

MIDDLE East oil company requires assistant power station superintendent, aged under 40 and capable of operating oil or gas-fired steam power station; chartered qualification and 10 years' steam power station experience. Pensionable post carrying paid home leave rights. Emoluments, for a bachelor, over £1,800 p.a. For a married man this figure would be increased. Write, quoting No. 351, to Box No. 6854, c/o Charles Barker & Sons Ltd., 31, Budge Row, London, E.C.4. 5713

NELSON Research Laboratories, English Electric Co. Ltd., Stafford, require laboratory assistants for special duties in connection with high-voltage and short-circuit testing of switchgear, transformers and H.R.C. fuses. Applicants should be studying for or hold the Ordinary National Certificate or Higher National Certificate in Electrical Engineering. Experience in the use of high-speed oscillographs and transient recording is desirable but not essential. Apply, quoting reference 306, to—Dept. C.P.S., 336/7, Strand, London, W.C.2. 5662

OLD-established electrical contractors, Mid Surrey, 20 miles London, require experienced estimating clerk or supervising engineer. Ability to drive and interview clients essential. State age and past record. Box 9307.

OLD-established electrical engineers S. London require young man with technical background and office experience to train as assistant to sales manager. Permanent and pensionable. Write, stating age, education, qualifications and salary required.—Box 5714.

PLUMBER-jointer for Middle East, experienced in jointing paper cables, lead covered and armoured up to 11 kV. Apply, stating age and experience, forward copies of testimonials or state names to whom we may apply, to—Box 5548.

PRESS tool maker. A well-established company in Yorkshire has a vacancy for a press tool maker. Experience desirable on combination tools for production of small laminations for electric motors. Excellent working conditions and modern equipment. Housing assistance would be given. Superannuation scheme. Please apply in writing, giving full details of experience and wages required, to—Box 5676.

REPRESENTATIVE with sales experience required by electrical manufacturer. Age under 35. Resident Bristol.—Box 5684.

SALARY up to £1,500 per annum with ultimate technical directorship for suitable electrical-mechanical engineer capable of assuming control of research and co-ordinating with production and overseas companies. Age about 40 years preferred. Write fullest possible details, otherwise application not considered, to—Box 5565.

SALES engineer required to promote sales of standard and special types of lighting, communications and electronic cables to Government depts., research establishments, nationalised industries, etc. Existing connections essential. Remuneration by salary and commission. Write fullest details.—Box 9284.

SALES representative for London area required by large electrical wholesalers. Superannuated post with excellent prospects to experienced applicant. Reply giving full particulars to—Box 5654.

SALES representative required for London area by manufacturers of electrical wiring accessories, with good wholesale and contractor connections. Good salary, car, expenses. Excellent prospects for man of proved ability. Write fully, stating age, experience, etc.—Box 5535

SALESMEN for electric lamps of all kinds, ex-W.D., new, mostly ring makes, at very low prices. Liberal commission.—Box 5685.

SENIOR draughtsman required having experience in design and manufacture of cable-making machinery. Applications in writing, stating age, technical qualifications, experience and salary required, to—Employment & Welfare Manager, Johnson & Phillips Limited, Charlton, London, S.E.7. 5614

SENIOR electrical designer required by well-known company in West London area to lead a small team working on design and development of commercial vehicle electrical equipment. Applicants should be of degree standard and have experience in design for large quantity production. First-class opportunities for advancement. Pension scheme. Commencing salary £700-£900 p.a. according to qualifications. Apply stating full details to—Box 5675.

SENIOR supervising engineer required for electrical contractors engaged on large contracts for power stations, aerodromes, factories, schools, etc., to be mainly responsible for estimating department and supervising through all stages of certain contracts. Must be thoroughly experienced in pricing electrical bills of quantities, preparation and pricing of tenders, supervising of large contracts, and preparation of final accounts. Permanent position, bonus scheme, car allowance, etc.—Watson-Norie Limited, 21, Ellison Place, Newcastle-on-Tyne, 1. 5672

TECHNICAL sales correspondent required for progressive manufacturers of scientific instruments and small electrical assemblies. Higher National Certificate. Knowledge of electro-magnetic devices an advantage. Housing and pension scheme available. Excellent prospects. Write full details, age, qualifications, experience and present salary.—Box 5639.

TENDERING engineers required by the Brush Electrical Engineering Co. Ltd. A vacancy exists in the switchgear division for a senior tendering engineer with good qualification and commercial experience of L.T. and H.T. switchgear up to 11 kV. There are also vacancies for junior tendering engineers in the electrical rotating machines division and the transformer division. Applicants for these latter positions should have received a sound engineering apprenticeship, preferably with subsequent experience of the products mentioned, and be educated to H.N.C. standard. The conditions of employment are of a very high standard and include a first-rate non-contributory pension scheme. Applications, giving all relevant particulars, should be addressed to—The Chief Personnel Officer, The Brush Electrical Engineering Co. Ltd., Loughborough, Leics. 5566

TRANSFORMERS: Chief of test required, London area. All types of air and oil cooled transformers from 5 VA to 50 kVA. A.M.I.D. Accustomed to preparing test certificates and release notes. Superannuation scheme. Holidays with pay, etc. Write stating age, experience, and salary required.—Box 5642.

TELEPHONE engineer required for Johannesburg, South Africa. Must be thoroughly conversant with installation and maintenance of push-button, loudspeaking and automatic telephone equipment and able to take complete technical charge of rapidly expanding business. Free passage and commencing salary of £750 per annum, with excellent prospects for right man. Write, stating age and precise details of education and experience, to—Autophone Ltd., 539, Wandsworth Road, London, S.W.8. 9302

THE BRITISH THOMSON-HOUSTON Co. Ltd., Rugby, require electrical testers for heavy and light electrical plant testing. No previous practical experience is necessary, but applicants must hold the Ordinary National Certificate in Electrical Engineering or an equivalent. Owing to accommodation difficulties only single men can be considered. Applicants, who should be over 21 years of age, must be prepared to do shift work, and should write stating age and experience to the Employment Officer of the company. 5640

THE GENERAL ELECTRIC Co. Ltd. has a vacancy at the head office of their sales organisation for a publicity liaison officer. Applicants should be in the age group 25/30 years and possess an Ordinary National Certificate. Previous experience in the preparation of catalogues and technical articles is essential, and some knowledge of industrial heating equipment an asset. Apply in writing to—The Staff Manager, Magnet House, Kingsway, London, W.C.2. 5641

THE GENERAL ELECTRIC Co Ltd. invite applications from suitably qualified men in the age group 25-30 years who are interested in space heating and water heating business. Applicants should possess an Ordinary National Certificate—preferably H.N.C.—and have had some previous experience in this type of work. The positions which exist in the head office of the company's sales organisation, carry a good commencing salary and prospects. Apply in writing, quoting reference "I.H.", to the Staff Manager, Magnet House, Kingsway, London, W.C.2. 5715

TRANSFORMER design engineers required. Applicants should have served a recognised apprenticeship and be qualified to H.N.C standard. Drawing office and test experience would also be an advantage but are not essential. The conditions of employment are excellent, including a first-class non-contributory pension scheme, and the positions offer plenty of scope and opportunities of advancement to men with the required ability and initiative. Please apply with full details of training, exp., age, salary, etc., to—The Personnel Dept., The Brush Electrical Engineering Co Ltd., Loughborough, Leics. 5549

TRANSFORMER designer required in Lancashire for work on power transformers up to 10,000 kVA, 3-phase, 66,000 volts. Applicants should have university degree and be Associate Members of the Institution of Electrical Engineers. The position holds good prospects for a keen, energetic man. Please state age, experience, and salary required to—Box 5567.

TRANSFORMER engineer required for the design of small rectifier power transformers up to 50 kVA. Experience of modern materials and manufacturing techniques, together with design methods, essential. Write in confidence, giving age, qualifications and experience, to—Personnel Manager, Standard Telephones & Cables Ltd., Warwick Road, Boreham Wood, Herts. 5667

VACANCIES exist at a large engineering firm in the Midlands for skilled armature and stator winders for development workshop. Preference given to men with experience on turbo-alternator rotors of 100 MW and upwards. Permanent position, good working conditions, canteen facilities, non-contributory life insurance and pensions schemes, eligibility according to rules. Apply giving full particulars to—Personnel Superintendent, The English Electric Co. Ltd., Stafford. 5568

VACANCY occurs in Lincolnshire for electrical draughtsman, preferably with experience in the layout of control gear and diagrams. First-class working conditions. Canteen and recreational facilities. Applications, stating qualifications and experience, to—Box 5616.

WANTED, foreman armature winder for Yorkshire. Must be fully experienced in all branches of armature, stator, rotor winding and ancillary operations, up to approximately 15 tons weight, A.C. and D.C. Good disciplinarian and timekeeper. Only first-class man accustomed to this class of work need apply.—Box 5655.

WORKS superintendent to take charge of production in small works in N. Midlands producing electrical control gear. Will be required to control the drawing office and manufacture but will not be responsible for design. The position is permanent and pensionable and carries an attractive salary. House will be made available. —Box 5570.

WANTED by consulting engineers, electrical engineer with D.O., test bed and works experience. Send full details and salary required.—Box 9279.

YOUNG electrical engineer with power transformer design experience required for interesting work in connection with transformers, voltage regulators and control gear. Apply to—Brentford Transformers Ltd., Kidbrooke Park Road, London, S.E.3, giving full personal particulars. 5550

YOUNG engineer required for training by Somerset firm producing centrifugal pumps and electric motors. Applicants should be good mathematicians with sound basic knowledge of hydraulics and preferably some electrical design knowledge. Salary in accordance with qualifications. Interview London. State fullest particulars of training and experience.—Box 5656.

YOUNG man with good theoretical general knowledge, mathematics, applied physics, is required by the Sealed Motor Construction Co. Ltd., Bristol Road, Bridgwater, making electrical machines and special electric pump units. The applicant must be prepared to take a period of training in design of electrical and hydraulic products of the company. Please write in first instance to—N. Pensabene Perez, P.O. Box 1313, Nassau, Bahamas. 5657

APPOINTMENTS FILLED

Dissatisfaction having so often been expressed that unsuccessful applicants are left in ignorance of the fact that the position applied for has been filled, may we suggest that Advertisers notify us to that effect when they have arrived at a decision? We will then insert a notice free of charge under this heading.

SITUATIONS WANTED

CANADA: Chartered electrical engineer (39), with responsible executive experience of commercial, technical and manufacturing aspects of light and medium mechanical and electro-mechanical products, wishes to contact principal with ideas of manufacture or sales in Canada; some experience of country and industry.—Box 9286.

DEVELOPMENT engineer, B.Sc., M.I.E.E., 20 years' experience instruments, test gear, components, nuclear physic, precision measurements, T.V., etc., seeks change. Part time considered. London area preferred.—Box 9257.

ELECTRICAL engineer (23), 5-year apprenticeship with leading manufacturers, specialised lighting, fluent French, Italian, Arabic, lived in Middle East 16 years, seeks position, preferably leading overseas.—Box 9304.

ENGINEER, Grad. I.E.E., A.M.I.Plant.E. (31), experienced all types installations H.T. and L.T., plant maintenance, 3½ yrs. consulting engineers on generating stn. construction, seeks progressive position, U.K. or overseas.—Box 9292.

EXPERIENCED electrician, City and Guilds, seeks situation abroad, or working charge hand anywhere, exp. industrial installations, airfield lighting, overhead lines, underground cables and excavation.—Box 9268.

IS 35 years' practical experience of the radio industry, technical and administrative, any use to you? Engineer, well known in the industry, available, part or full time. —Box 9280.

MAINTENANCE electrical engineer. Large or small factory, reasonable distance London, heating, lighting, steam/diesel, generation, A.C., D.C. motors, with control of labour.—Box 9274.

MANAGER/buyer, conversant with all aspects of electrical wholesalers trade, requires a position where drive and personal endeavour can be utilised. Aged 35, 18 years' experience.—Box 9267.

REPRESENTATIVE, Midlands (car owner), seeks change. Technical experience radio and electrical. Trade and retail connections.—Box 5508.

SALESMAN (West Riding) would like a change. Anything considered, must be progressive.—Box 9271.

YOUNG man, H.N.C. elect. std., D.O. and clerical experience, desires position with prospects of advancement. London area preferred.—Box 9305.

FOR SALE

INSTRUMENTS AVAILABLE SHORTLY FOLLOWING DISMANTLING OF SWITCHBOARD

13 3-phase Balanced Load Wattmeters, 0-300, complete with current transformers.
1 ditto, 0-400, ditto.
2 1,500 amp. Oil Circuit Breakers, ERSKINE HEAP.
13 300-amp. ditto, G.E.C.
1 100-amp. ditto, G.E.C.

B.S.C. CENTRAL OFFICES
Oundle Road, Peterborough 5673

D.C. GENERATORS

TWO 540-kW, 130/175-volt D.C. Generators by BRUCE PEEBLES, 4,125/3,075 amps. Shunt interpole, open type frames, split carcase. Suitable for direct coupling. Speed 428 r.p.m.

350-kW, 250-volt D.C. Generator by G.E.C. Six-pole, compound interpole. Suitable direct coupling only. Speed 300 r.p.m.

250-kW Generator by MET-VICK, for 500/440 volts D.C., 2-wire, 500 amps. Speed 375 r.p.m. Open type, compound wound.

200-kW Generator by E.C.C., for 200 volts D.C., speed 1,000 r.p.m. Open type, single pedestal bearing. Compound wound, fitted interpoles.

200-kW Generator by MAVOR & COULSON, for 500 volts D.C., 400 amps. Speed 380 r.p.m. Open type, 6-pole, compound interpolar wound. Single pedestal R.O.B.

75-kW CROMPTON, 110 volts D.C., 525 r.p.m., 682 amps. Shunt interpole wound.

GEORGE COHEN, SONS & CO. LTD.
Wood Lane, London, W.12
(Tel. Shepherds Bush 2070) and
Stanningley, Nr. Leeds
(Tel. Pudsey 2241). 5644

REACTORS FOR SALE

FOUR new ENGLISH ELECTRIC Outdoor Magnetic Shielded Reactors in tubular tank, with 190 gallons of oil (Flash-point 366° F.). H.T. and L.T. trifurcating boxes, conduit and junction box. Buchholz device, earth eye, drain valve, expansion vessel with oil gauge, breather cap and out-put plate to give 121 kVA, 3-phase, 50 cycles, primary 3,300 volts, 350 amps. (mounted on axles and wheels). Cost £570 each.

Electric Lamps

23,000 AURORA Electric Lamps, 250 volts, 60 watts, E.S. clear, in original case. Offered at 50% off manufacturers' prices.

H. E. BUTLER (SOUTHSEA) LIMITED
78, Marmion Road, Portsmouth
(Tel. Portsmouth 71435/6). 5677

BRITISH ELECTRICITY AUTHORITY

East Midlands Division

THE BRITISH ELECTRICITY AUTHORITY invites tenders for the sale of scrap plant at the Lincoln Power Station. The successful tenderer shall dismantle and remove the plant. The plant includes the removal of two turbo-alternators, and four stoker fired water tube boilers.

The specification for the plant and conditions of sale No. 6/Lincoln/57/M.25 may be obtained from the Divisional Controller, British Electricity Authority, East Midlands Division, Barker Gate, Nottingham, quoting Ref. GC/FF/GGT. Application, in writing, should be accompanied with a deposit of £2, which will be returned upon receipt of a bona-fide tender. Tenders are to be delivered to the British Electricity Authority not later than 12 noon on Monday, 31st August. 5695

SLIPRING MOTORS

250 h.p. and 225-h.p. MATHER & PLATT, 400/3/50, 970 r.p.m., year 1941.
44-kVA BRUCE PEEBLES Alternator, 400/3/50, 4-wire, 1,000 r.p.m.

RICHARD WILSON
Stanningley, Nr. Leeds
(Pudsey 2617). 9272

B. C. S.

Available for Immediate Delivery

TWO 600-kW SULZER Diesel Generating Sets, 440/220 volts D.C. Auxiliaries, spares, etc.
One 400-kW PETTER/BRUSH, 400/440-3-50, 600 r.p.m. Auxiliaries, etc.
One 135-kW BLACKSTONE/CROMPTON PARKINSON. 400/440-3-50, 500 r.p.m. Auxiliaries, etc.
One 100-kW BLACKSTONE/CROMPTON PARKINSON. 400/440-3-50, 5-cylinder Vertical Engine, 500 r.p.m. All auxiliaries, etc.
One 68-kW BLACKSTONE/ELECTRIC CONSTRUCTION. 415-3-50, 3-cylinder, Vertical Engine, 600 r.p.m. All auxiliaries, etc.

These sets are in excellent condition and can be inspected at our works.

B.C.S. (ENGINEERS & CONTRACTORS) LTD.
3, Castle Street, Cardiff
(Tel.: Cardiff 29246). 233

ELECTRICAL AND DIESEL EQUIPMENT BUILT TO ORDER

APART from our large stocks of reconditioned plant, we are now building the following NEW equipments to customers' specification:—

Motor Generating Sets.
LISTER Diesel Sets, A.C. and D.C.
PETTER Diesel Sets, A.C. and D.C.
Diesel-driven Welding Plants.
Petrol Battery Charging Sets.
Diesel, Electric or Petrol Pumping Plants.
Geared Motors, A.C. and D.C.
A.C. and D.C. Switchboards.

Send your enquiries to:—
STEWART THOMSON & SONS (LIVERPOOL) LTD.
Fort Road, Seaforth, Liverpool 21
(Tel. Bootle 2697/8).

London Office: Dacre House, Victoria St., London, S.W.1 (Tel. Abbey 4017 & 4835). 169

DIESEL ALTERNATOR SET

FOR sale, one nearly new NATIONAL/B.T.H. 30-kW (37.5-kVA) Diesel Alternator Set, tropically rated and tropically insulated, comprising 62½-h.p., 4-cylinder, vertical diesel engine, type MV4, coupled to B.T.H. 750-r.p.m., 440-volt, 4-wire, 3-phase, 50-cycle alternator, also petrol engine-driven air compressor and receiver for starting and cooling arrangements comprising Serck radiator or new cooling tanks. Also 3 panel cubicle switchboard by B.T.H. with O.C.B., ammeter, voltmeter, wattmeter, power factor indicator, watt-hour meter, hand voltage regulator, TIRRILL regulator, CASTELL key interlocks, isolator, etc., and outgoing feeder. Total units generated = 9,000.
Original cost £2,840.
OUR PRICE FOR PROMPT CLEARANCE £1,200.
W. H. COLLINGBOURNE & CO. LTD.
1481, Stratford Road, Birmingham, 28
(Phone: Shirley 3303). 67

AUTOMATIC STAND-BY GENERATOR

FOR sale, Automatic Mains Failure Diesel Alternator Set, 25 kVA, 400/3/50, comprising PELAPONE 5-cylinder, 1,000-r.p.m. diesel engine coupled on bedplate to E.C.C. alternator, with WATFORD cubicle switchboard equipped with automatic mains failure "start and stop" relay.
W. H. COLLINGBOURNE & CO. LTD.
1481, Stratford Road, Birmingham, 28
(Phone: Shirley 3303). 5686

ALTERNATOR FOR SALE

ALTERNATOR, 750 kVA, 600 kW, 440 volts, 3-phase, 50 cycles, 300 r.p.m., continuous rated, salient pole, by LAURENCE SCOTT. Single bearing, suitable for direct coupling.
REID BROTHERS (ENGINEERING) LTD.
Repair Works, Cuba Street, Millwall, London, E.14
(Tel.: East 4081/5). 5716

NEWMAN

1,500-amp., 20-volt M.G. Set by CANNING, with 50-h.p., 400/3/50-cycle driving motor.
75-h.p., 500-volt D.C., 600-r.p.m. ball-bearing Motor by E.E.C., with BROOKHIRST D type panel
300-h.p., 365-r.p.m., 400/3/50-cycle Rolling Mill Motor by CROMPTON PARKINSON, with Switchgear.
250-h.p., 292-r.p.m., 400/3/50-cycle Slipring Motor and switchgear by E.E.C.
110-kW M.G. Set by MET-VICK, incoming 400/3/50 cyc.; output 220 volts D.C., with switchgear.

NEWMAN INDUSTRIES LIMITED
Yate, Bristol
(Phone: Chipping Sodbury 3311). 5644

POLISHING SPINDLES FOR SALE

15 only: 2-h.p. Bench Double-ended Polishing Spindles, totally enclosed motors, 400/3/50, tested, in first-class condition.

£12 10s. EACH TO CLEAR.

HULBERT'S SHOWROOMS
19, Great Bridge, Tipton
(Telephone: Tipton 2204). 5658

ECONOMIC BOILER FOR SALE

2,500 lb. per hour UNUSED DANKS self-contained Economic Boiler, 100 lb. working pressure; complete with fittings and mountings, forced draught equipment, chimney, feed pumps, tank, piping, etc.

F. BURRILL & CO.
109, Pencisely Road, Llandaff, Cardiff
(Tel. Llandaff 95). 5509

POWER PLANT FOR SALE

ONE 200-kW and one 75-kW, 440 or 500/550-volt D.C. BELLISS & MORCOM Steam Set.
One 30 ft. × 9 ft. DANIEL ADAMSON Lancashire Boiler. 180 lb. working pressure.—Box 5645.

A BABCOCK & Wilcox water-tube boiler will cut down your fuel costs; we can supply from stock. Two 50,000 lb. evap., 310 lb. w.p.; two 40,000 lb. evap., 200 lb. w.p.; two 25,000 lb. evap., 250 lb. w.p.; two 16,000 lb. evap., 190 lb. w.p.; also marine, Cornish, vertical, etc. We install complete, including brickwork.—Burford, Taylor & Co. Ltd., Boiler Specialists, Commercial Street, Middlesbrough (Tel. Middlesbrough 2622). 36

A BARGAIN in electric motors can always be obtained from A. Cooksley & Co. Ltd., 21-35, Tabernacle St., London, E.C.2. Tel. Monarch 3357. Stocks at present comprise new squirrel cage motors, 1-25 h.p., also new and secondhand slipring motors, with starters, from 7½ b.h.p. to 30 h.h.p. 50

A HIGH-vacuum impregnation unit, to R.I.C. Specification 214 or individual requirements. Good delivery at competitive prices from—Blickvac, 505, Lordship Lane, London, S.E.22 (Forest Hill 7089). 44

A LARGE engineering concern is offering for sale a complete 380-kVA generating station comprising three 83-kVA G.E.C. revolving field alternators driven by three Blackstone E.P.V.3 diesel engines, and one 133-kVA revolving field E.C.C. alternator driven by a Blackstone E.P.V.6 diesel engine. The equipment is complete with starting compressors, water and oil coolers, fuel tanks and Crompton Parkinson switchboard, and has been maintained in excellent condition. A full descriptive brochure will be sent on request.—Box 5659.

A QUANTITY G.E.C. 230-250-v. fluorescent lamps, 125 watts; also Ediswan 250-watt, 200-250-v. mercury vapour lamps. £1 each, all new, guaranteed.—M. P. Hennessy, Linley Hall, Talke, Stoke-on-Trent. 9295

A.C. and D.C. house service meters, all sizes, quarterly and prepayment, reconditioned, guaranteed one yr. Repairs and recalibrations. — The Victa Electrical Co., 47, Battersea High St., S.W.11 (Tel. Battersea 0780). 138

A.C. and D.C. motors, all sizes, large stocks, fully guaranteed.— Milo Engineering Works, Milo Road, East Dulwich, S.E.22 (Forest Hill 2278-9). 102

A.C. and D.C. motors, generators, from stock.—Service Electric Co. Ltd., Honeypot Lane, Stanmore, Middx. (Edgware 5566/9). 91

A.C. and D.C. motors, new and reconditioned. Diesel alternator sets, generators, transformers, welders, plating equipment, switch and control gear, etc. Stock list post free.—Thos. W. Ward Ltd., Albion Works, (Sheffield (Phone 26311, ex. 347). 5237

ALTERNATORS, 2 kW, 230/1/50, £39; 5 kVA, £69, etc., to 30 kVA; Converters, 110 v. and 220 v. D.C. to 230/1/50 0.3 to 6 kVA, from £15; also D.C. Generators. Lists.—Powerco Ltd., Wandsworth Town Station, York Road, London, S.W.18 (Vandyke 5234). 151

ARMOURED cables all sizes, lengths and voltages; competitive prices.—E. M. Tatton & Co., Kew Bridge, Brentford (Ealing 3155/6). 117

BUILDERS' pole ladders from well-grown Norwegian spars now in production. Also all sizes steps, trestles, telescopic trestles, push-up and rope-operated extension ladders. Write, phone or call—Shaftesbury Ladders Ltd., 453, Katherine Road, London, E.7 (Phone, Grangewood 3363/4). 23

CIRCUIT breakers, various sizes in stock, 300 ampere up to 2,000 ampere, pedestal and cubicle type, 3-ph., oil-immersed. Also alternator switchboards made to requirements.—Britannia Manufacturing Co. Ltd., 22/26, Britannia Walk, London, N.1. 37

CIRCUIT breakers, 300 amps., 3-phase, 50 cycles, Crompton Parkinson clad type, floor mounting, 25 MVA rupturing capacity. Number available.—Britannia Manufacturing Co. Ltd., Britannia Walk, London, N.1. 21

CONTROL panels, 5-9-12.5 kVA, complete AVR, 230 and 400/3/50, suitable Brush, B.T.H., G.E.C., etc., 3′ × 15″ × 19″, tested, £39 to £65.—Powerco Ltd., Wandsworth Town Station, York Road, London, S.W.18 (Vandyke 5234). 150

CURRENT transformers, ring type, 100/300 amps. Delivery ex stock.—Hurst Electrical Industries Ltd., 75a, Well Street, London, E.9. 221

DIESEL electric plants, new, 2.25 kVA, from £168, stationary or mobile.—Powerco Ltd., Wandsworth Town Station, York Road, London, S.W.18 (Vandyke 5234). 149

DIESEL generating sets, English manufacture, direct current, all voltages, from 50 kW to 260 kW.—Britannia Manufacturing Co. Ltd., 22-26, Britannia Walk, London, N.1. 17

DIESEL generating sets, English manufacture, 3-phase, all sizes from 50 kW to 260 kW.—Britannia Manufacturing Co. Ltd. 22-26, Britannia Walk, London, N.1. 16

E.D.C. new motors, 1 h.p., 400 v., 3-ph., 50 c., 2,800 r.p.m., b/b, £9 10s.; ¾ h.p. ditto, 1,400 r.p.m., £7 15s.—Universal Electrical, 221, City Rd., London, E.C.1. 5538

ELECTRIC motors, dynamos, alternators and motor generator sets of all sizes. We hold one of the largest stocks in England. New and reconditioned, with 12 months' guarantee.—Britannia Manufacturing Co. Ltd., Britannia Walk, London, N.1 (Clerkenwell 5512, 3 lines); also Works and Stores, Chobham, Surrey. 20

ELECTRIC motors, generators, control gear, transformers, A.C. and D.C., new and reconditioned; all covered with our usual 12 months' guarantee; large stocks available.—Electropower Co. Ltd., Kingsbury Works, Kingsbury Rd., London, N.W.9 (Colindale 4621-2). 42

ELECTRIC motors, generators, motor generator sets, transformers, switchgear, etc., large comprehensive stock, overhauled and guaranteed. Copy of our Register, "Electrical Surplus," containing thousands of items of electrical plant, sent on request.—R. F. Winder Ltd., Belgrave Electrical Works, Leeds, 2. 54

ELECTRIC motors, 20 h.p., 730 revs.; 10 h.p., 1,420 revs.; 5 h.p., S.R., 1,500 revs.; also 3, 2 and 1½ h.p., all 400/3/50, "Neco" geared motor, 117 revs., 100/200 v., 1-ph. Quantity of fuse boxes, switches, etc.—Kimmins, Lyndhurst Road, Worthing. 9309

EMPIRE tape, 2¾″ × 0.005″, straight cut, 20,000 yds. Will easily cut to varying widths. Sample on request. 25s. 100 yards; or offer for parcel.—Box 9294.

FOR sale, automatic telephone switchboard, 100-line capacity, complete with emergency batteries. Manufactured 1948; in excellent condition. About 20 instruments also available. Apply—The Cementation Co. Ltd., Ellerbeck Site, Slaidburn, Nr. Clitheroe, Lancs. (Tel. Slaidburn 228). 5660

FOR sale, equipment from East Retford Generating Station: One National gas engine, 300 h.p., water-cooled, 300 r.p.m., 3-cylinder vertical, year 1926, complete with access platforms and iron ladder; a quantity of pipe and certain engine spares are also available for disposal. One Electric Construction Co. alternator, 200 kW, 6,600 volts, 3-phase, 0.8 p.f., 300 r.p.m., 50 cycles, continuous rating, year 1926, complete with exciter. One National gas engine, 400 h.p., water-cooled, 300 r.p.m., 4-cylinder vertical, year 1926. One Electric Construction Co. alternator, 270 kW, 6,600 volts, 3-phase, 0.8 p.f., 300 r.p.m., 50 cycles, continuous rating, year 1926, complete with exciter. For further particulars apply to—Divisional Purchasing Officer, East Midlands Division, Barker Gate, Nottingham. 5694

FOR sale, Johnson & Phillips 400-kV transformer, input 6,000 volts, output 11,000 volts. Complete with mercury type on-load tap changing switch. Buchholz protection. Offers to—Monmouthshire Board Mills Ltd., Alexandra Docks, Newport, Mon. 5693

FOR sale, large stocks of alternators and diesel engines, in all sizes up to 500 h.p. For the most part new as received from the makers and unused.—Fyfe, Wilson & Co. Ltd., Bishop's Stortford. 5719

FOUR new 1,250-kVA transformers for sale, 66,000/3,300 (two step up and two step down), tap changing, cubicles. Also number 100 kVA, 50 kVA, 25 kVA, 10 kVA, all 3,300/400. Many others.—Fyfe, Wilson & Co. Ltd., Bishop's Stortford. 5718

GENERATING sets, petrol engine-driven alternators, 220/240 volts, single-phase and 3-phase.—Britannia Manufacturing Co. Ltd., 22-26, Britannia Walk, London, N.1. 19

GENERATING sets, petrol engine-driven dynamos, 110 volts and 220-240 volts, direct current.—Britannia Manufacturing Co. Ltd., 22-26, Britannia Walk, London, N.1. 18

GENERATING sets, 100's, ex M.O.S., at fraction of cost, 300 w. to 50 kVA. Lists free.—Powerco Ltd., Wandsworth Town Station, York Road, London, S.W.18 (Vandyke 5234).

H.F. alternators, 1,500 cyc., 80 volts, 25 amps.—E.W.S. Co., 69, Church Rd., Moseley, Birmingham. 9155

HOUSE service meters, C. & H., Aron, E.A.C., 20-240 v. A.C., s.-ph., 50 c., 2½ amps., 7s. 6d. each, 1s. 6d. postage; 5 amps., 17s. 6d.—Universal Electrical, 217-221, City Road, London, E.C.1. 28

IMMEDIATE delivery new 330-kVA, 400-volt, 3-phase, 50-cycle, 4-wire B.T.H. alternator direct coupled to 400-h.p. Paxman diesel engine, 1,000 r.p.m., complete with switchboard and A.V.R. control.—C. J. Ferguson & Sons Ltd., 33, Barbican, London, E.C.1 (Monarch 5474/5). 104

MERCURY switches are made by Hall, Drysdale & Co. Ltd., of 58, Commerce Road, Wood Green, London, N.22 (Tel. Bow 7221). 182

METERS, A.C./D.C., quarterly or slot.—Brent Electrical Co., 6, Holmdale Gardens, London, N.W.4 121

MOTOR generator sets and converters, all sizes and voltages from ½ kW up to 500 kW in stock.—Britannia Manufacturing Co. Ltd., 22-26, Britannia Walk, City Rd., London, N.1 (Tel. Clerkenwell 5512, 5513 & 5514). 12

MOTOR generator sets; switchboards; control panels; built to individual requirements. Competitive prices. Enquiries to—Thos. W. Ward Ltd., Albion works, Sheffield (Phone 26311, ex. 247). 5239

NAMEPLATES, engraving, diesinking, stencils.—Stilwell & Sons Ltd., 153, Far Gosford St., Coventry. 22

OPRIM rotary ironer, 230/250 v. Almost new condition. £30.—Box 9303.

PLATED nuts, screws, washers, bolts, soldering tags, hank-bushes, self-tapping screws, grub-screws, socket-screws, wood-screws. Large quantities or gross cartons. Stamp for list.—Sinden Components Ltd., Dept. D, 117, Churchfield Road Acton, London, W.3 (Acorn 8126). 200

PLATING dynamos and motor generator sets, various sizes from 500 amps up to 2,000 amps., with A.C. or D.C. motors.—Britannia Manufacturing Co. Ltd., 22/26, Britannia Walk, London, N.1. 15

POLYPHASE kilowatt hour meters. Available from stock.—Universal Electrical, 221, City Rd., London, E.C.1. 203

PREPAYMENT 1s. slot house service meters.—Universal Electrical, 217-221, City Rd., London, E.C.1. 27

PURLEY chokes and ballasts. Our 80-w. tapped h.p.f. ballast with starter switch-holder incorporated is proving itself the most popular unit. Suitable for most fittings. 57s. 6d. each subject.—F. W. Blanshard Ltd. (Dept. ER), Purley, Surrey (Uplands 4818/9). 52

RETRACTABLE test prods, 5,000 volts. Conforms to Ministry of Labour (Factory Department) Acts. Price £4 4s. per pair.—Runbaken, Manchester, 1 (Ardwick 2507-8-9). 5424

ROTARY converters for operating television receivers from low-voltage D.C. supplies, 12, 24, 50, 110 or 230-v. D.C. input and standard 230-v. output at 50 cycles, with filter. Also rotating electrical machinery up to 20-kW output, for special purposes.—Ward, Lordsmill Works, Haverhill, Suffolk (Tel. 253). 167

ROTARY convertors in stock, all sizes, enquiries invited.—Universal Electrical, 221, City Road, London, E.C.1. 25

SLYDLOK fuses and English Electric H.R. fuses ex stock.—Ryness Ltd., 178, Stamford Hill, London, N.16. 9252

SMALL stainless steel screws and nuts up to and including 3″ Whitworth.—The Premier Screw & Repetition Co. Ltd., Woodgate, Leicester. 180

TIME switches for sale. Reconditioned or new. Immediate delivery; 12 months' guarantee. Lists from—J. W. Hughes, 3, St. Thomas Street, London Bridge, London, S.E.1 (Tel. Hop 2759). 241

TRANSFORMERS, 230/115/1/50, double wound, 10 kVA, £29; 15 kVA, £35; 5 kVA, 400/200/3/50, double wound, £29; 50 kVA, 9,000/220/3/50, double wound, £95; 200 kVA, 400/200/3/50, double wound, £195. Lists free. —Powercon Ltd., Wandsworth Town Station, York Road, London S.W.18 (VAN. 5234). 152

UNUSED motor generating set, 85/68 volts, 1,550 amps., direct driven by 159-h.p. s/r motor, 400/3/50, 950 r.p.m. Manufactured by E.C.C., Wolverhampton. With starter and voltage regulator. New 1943. Never put to service, carefully stored.—Box 5595.

VACUUM cleaner spare parts of every description: Hoses, dustbags, brushes, bearings, commutators, cradle straps. In fact, everything you require. Price list on application.—Crown Appliances Ltd., 156, Uxbridge Road, Shepherd's Bush Green, London, W.12 (Telephone, shp. 6677). 73

VENNER time switches, 200-240 v. A.C./D.C., 10-50 amps., from stock.—Universal Electrical Co., 221, City Road, London, E.C.1. 29

WARD Leonard motor generator sets, all sizes.—Britannia Manufacturing Co. Ltd., 22-26, Britannia Walk, London, N.1 (Tel. Clerkenwell 5512). 10

WELDING dynamos and welding sets for sale.—Britannia Manufacturing Co. Ltd., 22-26, Britannia Walk, London, N.1. 11

400-cycle, 230-volt, 1,500-r.p.m. new G.E.C. alternators.—Britannia Manufacturing Co. Ltd., 22/26 Britannia Walk, London, N.1. 39

400/3/50 generator sets, 28 kVA and 22 kVA. Crompton Parkinson and Metro-Vickers, mounted on skids and pneumatic trailers, powered by diesel engines and Ford V.8 engines, for disposal.—G. C. Cook Ltd., Bridge Works, 342, Queenstown Road, London, S.W.8. 96

400-h.p., 400/3/50, 980-r.p.m., screen prot, slipring and two 45-h.p., 400/3/50, 1,450-r.p.m. T.E.F.C. slipring. All new.—John Sanger & Co. Ltd., Birmingham, 4 (Tel. Aston. 2854). 9300

1,000 motors, alternators up to 200 h.p.; diesel, hydro and petrol sets to 75 kVA; control and fuse gear to 500 amps. Lists available.—J. S. Ramsbottom & Co. Ltd., Keighley (3774-5-6). 56

12,000-gall. cyl. oil tank, 30' × 9' diam.; 10,000-gall. sec. steel tank; 26 & 5-kW diesel sets, 230 v. D.C.; 12.5-kVA petrol set, 240/-/60; 185-h.p., Ruston 5-cyl. diesel engine. Autoclaves, pumps, mixers, etc.—Phone 98 Staines; Harry H. Gardam & Co. Ltd., Staines. 60

AUCTION NOTICES

Nineteenth Sale **E. R.**

BY ORDER OF THE MINISTER OF SUPPLY

M.O.S. STORAGE DEPOT, RUDDINGTON
(Five miles from Nottingham, on the main Nottingham-Loughborough road).

WALKER, WALTON & HANSON

(in association with Turner, Fletcher & Essex and Richardson & Linnell) will Sell by Auction on THURSDAY, 16TH JULY, 1953, at 10.30 a.m., a Large Quantity of

GOVERNMENT SURPLUS PLANT AND STORES

including Horizontal and Vertical Millers, Centre Lathes, Planing Machines, Cold Saws, Radial and Vertical Drilling Machines, Boring Machines, Grinders, Machine Tool Accessories, Marine Propeller Units, M.T. Spares, Crane and Tractor Spares, Batteries, Jacks, Rubber Solution, Tyres and Tubes, Small Tools, Non-skid Chains, Assorted Cloths, Waste Materials, Boots and Shoes, Shirts, Ties, Pyjamas, Overalls, Canvas, etc.

On View: Thursday, 9th July; Friday, 10th July; Monday, 13th July; Tuesday, 14th July; Wednesday, 15th July, 1953, 9 a.m. to 4.30 p.m. each day. And also on the morning of Sale from 9 a.m. to 10.15 a.m.

Catalogues, price 6d. each (postal orders only), to admit two persons to view and one person to the Sale, may be obtained (19th June onwards) from the Auctioneers' Offices, Byard Lane, Bridlesmith Gate, Nottingham (Telephone: Nottingham 47271-4). 5646

ARTICLES WANTED

CIRCUIT breaker 11,000/3/50, 400 amp. Rupturing capacity must be 150 MVA.—Box 5720.

COPPER wire wanted. Cash paid. — Porchester, 16, Gerrard Street, London, W.1 (GER. 7942). 81

DIESEL engines or diesel-driven generator sets, 100 kW up to 400 kW, slow speed preferred. — Britannia Manufacturing Co. Ltd., 22-26, Britannia Walk, London, N.1. 14

P.V.C. covered stranded wire. Surplus quantities urgently required. Cash paid. — Porchester, 16, Gerrard Street, London, W.1 (Gerrard 7942). 82

REDUNDANT stocks of bare, insulated and enamelled copper wire. Offers to—Box 5468.

REGULAR supply of cheap T.R.S. cable required, non-standard lengths accepted.—Box 9308.

RESISTANCE wire, nickelchrome. Offers of surplus stock, 20-30 gauge, invited.—Box 216.

SURPLUS laminations, enamel copper wire,, screws, nuts, flex. Good prices paid. Full details to—Box 9258.

SURPLUS stocks of Niphan pattern plugs and sockets. Quote part No., price, and number available.—Box 5721.

WANTED, D.C. and A.C. ball-bearing motors, motor generator sets, dynamos and alternators. Full details to—Britannia Manufacturing Co. Ltd., 22/26, Britannia Walk, London, N.1. 13

WANTED for prompt cash, ferrous and non-ferrous scrap, also plant for dismantling. Buyers of second-hand machinery and plant for re-use.—W. & H. Cooper Ltd., 176, Brady Street, Bethnal Green, E.1. 32

WANTED, rotary converters, any size.—Universal, 221, City Road, London, E.C.1. 26

WANTED, 200/250-kVA diesel set, 400/440/3/50. Also a number of alternators, 400 and 700 cycles, in sizes up to 50 kVA.—Fyfe, Wilson & Co. Ltd., Bishop's Stortford. 5717

650/800-amp., 440-volt, 3-phase, 50-cycle air break or low oil contents breaker.—John Godden (Stoke) Ltd., Kingsway, Stoke-on-Trent. 5661

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CASTINGS

FISHER FOUNDRIES Ltd., Great, Birmingham, have immediate capacity for machine-moulded precision castings in gun metal and grey iron, ¼ to 30 lb. All castings shot blasted. Tel.: Birmingham, Victoria 0197. 225

A.C. and D.C. motor rewinds and repairs. Prompt service, fully guaranteed.—Edgware 5566/9; Service Electric Co. Ltd., Honeypot Lane, Stanmore, Middx. 92

A.C. and D.C. motors manfd., rewound and repaired. Contract winding of armatures, stators and transformers. Vac. Arms. 19s. Frig. motors £3. 12 months' guarantee; 24 hrs.' service.—B.E.M. Co. Ltd., 5a, Palmerston Road, Wealdstone (HAR. 5373). 9262

ARMATURE rewinding service to the trade. Vacuums, drills, grinders, hood dryers, dental motors. Vacuum cleaner armatures replaced from stock. 24-hour service. Every job guaranteed. All vacuum parts, hoses, etc., in stock for any make.—Regam Electric, 95-7, Park Lane, Leeds, 1. 206

BURNT-out fluorescent tubes reconditioned—E. J. Dawes Ltd., Erimus Works, Stockton St., Middlesbrough. 219

DO you want something made in quantity? If it is a metal pressing, an assembled component or precision machining, we can offer you the factory space and manufacturing "know-how." Send us your enquiries.—Metal Components Ltd., Dolphin Road, Shoreham, Sussex (Tel. Shoreham 2224-5). 74

ELECTRIC motor winding, production and repair, prototypes designed, enquiries invited.—Fattelay & Sharp Ltd., 10a, Acton Street, Gray's Inn Road, London, W.C.1 (Tel. Terminus 5127/8). 236

ELECTRIC motors, stators, etc., repaired and rewound. Vacuum cleaner and electric tools rewound. Seven-day service. — The Motor Winding Co., 18, Gipsy Hill, London, S.E.19 (Gipsy Hill 0354). 71

METAL spinnings. Immediate capacity for metal spinnings, sheet metal work and welding.—Highbury Metal Co., 30, Highbury Place, London, N.5 (CAN. 2906). 9226

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TIMESWITCH and instrument repairs, public lighting contractors.—G. W. Wren, 10a, Erith Road, Bexleyheath (Bex. 2769). 5674

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AGENCIES required by long-established firm of manufacturers' agents with large sales organisation covering the whole of Great Britain for conduit, conduit fittings, cables and flexibles, fans or any lines suitable for distribution to wholesalers; commission or buying basis.—Box 64.

A LONG-established firm having many agents with excellent connections throughout the British Isles and the Export Trade would be interested to hear from a manufacturer who requires increased sales of any lines suitable for distribution to electrical wholesalers.—Box 228.

AGENTS required by firm manufacturing motor control gear up to 7½ h.p. Should have connections with machinery manufacturers. State areas covered and technical ability.—Box 5576.

AGENTS required on commission basis in most areas except London and Manchester by well-known conduit fittings manufacturer. Must have "live" connections with wholesalers. Write full particulars.—Box 5575.

NORTHERN Ireland area. Manufacturers cable accessories, switchgear, desiring an agent in above area with excellent connections supply authorities, wholesalers, contractors, contact—Box 9296.

WANTED, commission agent electrical woodware. Northern counties, state area and present agencies. —Box 9310.

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ELECTRO-magnetically operated starter switch, Patent No. 619089, for single-phase electric motors. Offered for sale or manufacture under licence. Enquiries—Box 9293

MANUFACTURERS wish to dispose of electrical garden tool. Goodwill, patents, designs, etc. Reasonable figure only required.—Box 9301.

MERGER or directorship offered by electrical manufacturers, Midlands, producing established lines, using good quantities of copper and brass strip, section, tube, grey iron castings, electrical ceramics, hot brass stampings. Min. £5,000.—Box 9298.

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ENGINEERING company for sale as going concern. Factory leasehold premises, N. London, comprising approx. 5,000 sq. ft. operating capacity. Fully equipped machinery and equipment for tool making and small engineering production work.—Box 9306.

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ACTIVE directorship required in a well-established electrical manufacturing business by well-known sales director with excellent connections amongst Area Boards, Government Departments, Electrical Contractors, etc., etc. Investment £10,000 to £15,000. Please reply in strict confidence, to—Box 5722.

DIRECTORSHIP offered to electrical engineer, or alternatively sales executive, East Midlands firm producing branded lines for Electricity, Coal Boards, export and wholesalers. £5/10,000.—Box 9299.

EDUCATIONAL NOTICES

COUNTY BOROUGH OF BOLTON, EDUCATION COMMITTEE

Bolton Technical College

A THREE-YEAR full-time course in ELECTRONIC ENGINEERING commences in September, 1953. Applicants should be in the age range 16 to 18 and have obtained, or be taking, General Certificate (Ordinary Level) in Mathematics or Physics, or equivalent courses in technical institutions.

This rapidly developing industry offers new and attractive openings to qualified men. Application forms and particulars may be obtained from the Principal, Technical College, Bolton, Lancs.

W. T. SELLEY,
Chief Education Officer.

Education Offices,
Nelson Square, Bolton. 239

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COMPANY MEETINGS

Copy can be accepted up to first post on Monday of the week of issue.

Price £22 per column and pro rata.

TELEPHONE RENTALS LIMITED

Another Successful Year

Hampering Effect of Delayed C.I.C. Decision

Mr. Fred. T. Jackson on Board's Prudent Policy

THE 24th Annual General Meeting of Telephone Rentals Limited was held on 22nd June in London, Mr. Fred. T. Jackson, O.B.E., Comp.I.E.E. (Chairman and Joint Managing Director), presiding. The following is an extract from his circulated statement:—

Once more we have had a very successful year, and the forecast I made at our last general meeting of the profits for the year 1952 has been exceeded.

The profit for the year ending 31st December, 1952, amounted to £616,886, after charging £58,144 for employees' participation scheme. This shows an increase in gross profit of £151,303 over the year ending 31st December, 1951. I am sure you will agree that this is most satisfactory.

The result achieved was in spite of the difficulties we had to surmount during the past year, which necessitated some restrictions on taking new business; nevertheless, we succeeded in increasing our annual rental by £157,131.

As you know, the nature of your company's business is such that it requires additional capital from time to time. The amount we can afford to spend out of our liquid resources on new installations is dependent on the margin left after meeting taxation and dividends to shareholders.

Taxation is a very serious item. You will see from the accounts before you that for the year under review we have to provide £405,282, which represents a £144,151 increase over the amount we had to provide for the year ending 31st December, 1951. It is of interest that Excess Profits Levy calls for £74,000 and profits tax £48,000.

With taxation at its present level it is a matter for serious consideration by your directors as to whether it is worth while continuing to develop the business, in view of the difficulty of finding the liquid funds to meet the tax liabilities. We can now take into consideration the statement of the Chancellor that the Excess Profits Levy will be abolished at the end of 1953, but nevertheless our liability for this tax in respect of the current year will be a very considerable sum. We therefore feel that we should exercise prudence and still restrict our activities to a certain extent, so that in 1954 we should be in a position to go ahead with the further development of the business.

You will observe from the accounts that we have tax reserve certificates amounting to £100,000. During the current year we have purchased further certificates to the value of £150,000; therefore, as far as we can judge, with restrictions on new business, we shall be able to meet our tax liabilities during the current year comfortably. The issue of 880,000 shares in December last has, of course, eased the financial position considerably.

It has always been the aim of your directors to build up the financial strength of your company, and I think that up to the present time this policy has been successful, inasmuch as the profit-earning capacity and the dividend record over many years past has been such that would merit your company's shares being designated one of the "Blue Chips" investments in Industrials.

Bonus Issue of Shares

At an extraordinary general meeting held on 6th May, 1953, authorisation was given for the capitalisation of part of the share premium account by the issue of 1,120,000 fully paid Ordinary shares of 5s. each in the proportion of one share for every 4,714 shares held, and these shares will rank for the final dividend for the current year under review.

This continues the policy initiated in 1951 when a bonus issue of one in ten was made, and although I am unable to prophesy that further bonus distributions will be made, it is reasonable to expect that there will be further distributions in the future if the company continues to expand as satisfactorily as it has done in the past.

Employees' Participation Scheme

Now I would like to refer to our Employees' Participation in Profits Scheme.

Recently there has been some comment at the hands of a few shareholders of the effect upon their interests by reason of the Employees' Participation Scheme. This scheme was inaugurated in 1946 with the object of giving

an added sense of partnership in the undertaking by ensuring that employees (subject to the necessary qualifications) should have a share in the profits which their efforts have helped to create. Reference thereto has been made by me from time to time in my statement which annually accompanies the accounts.

Because of the comment referred to above your directors were of the opinion that it would be wise to have an investigation made into the scheme, and I am glad to be able to inform you that an investigation made by our own auditors has fully vindicated the directors' opinion of the scheme that it is in the interests of the shareholders and of the employees.

The conclusion formed is that the Employees' Participation Scheme should continue in its present form and, in doing so, the company will not attract to itself a burden of distribution thereunder to the undue detriment of the holders of the Ordinary share capital.

It is recommended that a full review of the scheme should be made periodically to ascertain its effect upon the company in the light of our changed circumstances.

Subsidiary Companies

The company's main operating subsidiary in South Africa has had a most successful year and is now making substantial profits. We have therefore taken the opportunity of writing off the goodwill of £16,961 which appeared in that company's balance sheet.

All the other subsidiaries of your company traded at a profit in 1952.

Accounts

Profit and Loss Account: After making provision for taxation amounting to £405,282, the transfer to general reserve of £100,000, and the dividends on both Ordinary and Preference shares amounting to £85,350 net, which includes the final dividend in respect of the recent bonus issue, we are left with an unappropriated balance of £122,685 to be carried forward to the current year.

Balance Sheet: Taking the capital reserves first, you will see that the share premium account has increased by £41,702 to £291,032 as a result of the share issue made in December, 1952. This account has since been reduced by £280,000 by the issue of the fully paid bonus shares referred to above, and will be reduced further by the costs of the issue, when known. The only other movement in the capital reserves has been to increase the surplus on realisation of capital assets by the sum of £2,056, as a result of company-owned houses having been sold.

Under revenue reserves you will see that the general reserve has been increased by a further £100,000, bringing the total up to £650,000, which, together with the contingencies reserve of £50,000, makes a total of £700,000.

Turning to the assets side of the balance sheet, the net value of the revenue-bearing installations is £2,430,373, which is equivalent to just under 1.6 year's rent.

Freehold and leasehold properties at £81,475 shows a slight reduction compared with the previous year, and is accounted for by the disposal of certain house properties.

Consolidated Balance Sheet and Profit and Loss Account

The only material change in the consolidated accounts is the disappearance from the balance sheet of a figure against the item of goodwill. As already mentioned, we have taken the opportunity of writing off the sum of £16,961 in respect of one of our South African subsidiaries. This leaves a surplus of £15,759, which appears under the heading of "Other capital reserves."

The net profit of the group before taxation is £667,068, compared with £495,751 for 1951. After providing for taxation, the transfer to reserve, and dividends, the balance of unappropriated profits carried forward and attributable to the holding company's shareholders amounts to £160,998.

In conclusion, I would like to say that the year 1952 for your company was one of the most difficult in its whole history. The restriction on bank loans, and the refusal of the C.I.C. in the early part of the year to grant us permission to secure additional capital, brought our expansion programme to a halt and seriously hampered our activities, and the fact that we ended the year with such excellent results reflects great credit, firstly, upon the staff of all ranks for the excellent way in which they rallied round the company and performed their work in very trying circumstances, and, secondly, to the directors, who refused to accept the decision of the C.I.C. and persisted in their efforts until the necessary sanction for a capital issue was given.

Although we are obliged to continue to work in a restricted field, nevertheless I look forward to the continued prosperity of your company in the current year.

The report and accounts were adopted, and the final dividend of 6%, making 10% for the year, was approved.

5663

W. T. HENLEY'S TELEGRAPH WORKS COMPANY

10 per cent Increase in Cable Exports

THE Annual General Meeting of W. T. Henley's Telegraph Works Company Ltd. was held on 19th June in London.

Sir John Dalton, A.M.I.E.E., F.C.I.S., the Chairman, presided.

The Chairman, in the course of his speech, said: The net current assets, that is, the current assets less the liabilities, are £6,612,000, or some £2,400,000 more than at the end of 1951.

The market value of our trade investments exceeds their book value by almost £1,000,000.

The balance in our trading account for the year is £1,364,135, which is within £5,000 of the balance in 1951.

The net profit of the parent company for the year at £594,554 shows an increase of £60,391 over the previous year, that is, an increase of 11.3%. We have transferred £300,000 to general reserve, the total of which reserve now stands at £3,100,000.

It is proposed to pay a final dividend of 8%, which, together with the interim dividend of 5% already paid on the £2,437,500 of Ordinary stock, becomes equivalent to 10½% on the Ordinary Stock, issued at the end of the year.

Our subsidiary companies, Henley's (South Africa) Telegraph Works Company Ltd. and Oakley Brothers Ltd., both showed expansion during the year. Our other subsidiary, Henley's Tyre & Rubber Company Ltd., however, suffered a setback in common with a serious recession in the tyre industry generally.

Exports represent an important part of our business, but during 1952 we were handicapped both by copper rationing and the restrictions upon imports imposed in our principal overseas markets. Nevertheless our export sales increased in relation to 1951 by approximately 10%.

Future Prospects

The special problems which we face to-day are in the nature of things unusual and transitory, but they have a bearing on the immediate future. Impediments to progress, outside our control, arise from a variety of causes. Financial stringency overseas and credit restrictions at home have resulted in our company being obliged to accept deferred payments or asked to delay shipments, and indeed at home we have found ourselves financing other industries to a certain extent. There was an overstocking of cables by the nationalised and other industries during the time of scarcity, and we now await the re-entry into the market of our larger buyers as soon as current stocks of cable are run down.

On the other hand, we should perhaps as an industry count our blessings. We are linked inevitably with the great electrical industry of this country. There can be no doubt that the major industries of this country must utilise more and more electrical energy if we are to meet the ever-increasing keenness of foreign competition in world markets. The British Electricity Authority is fully alive to this necessity and is planning accordingly.

Thus there must be a continued and even expanding demand for our products. There is already a pent-up demand awaiting release as our more urgent national problems become solved.

The report was adopted. 5696

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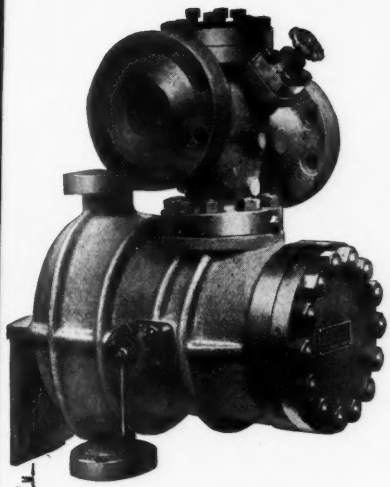

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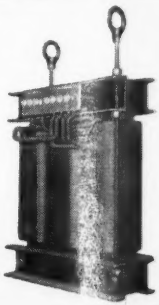

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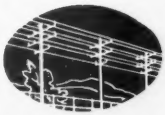

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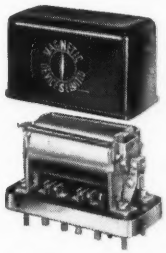

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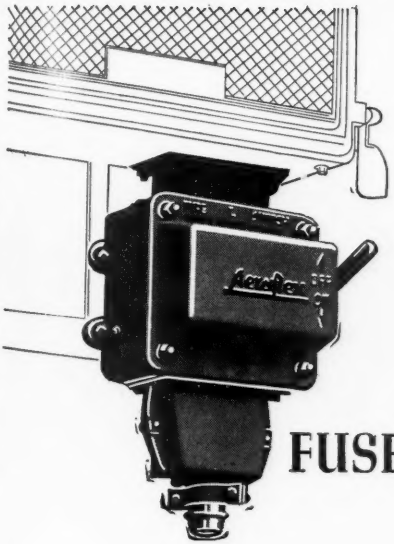

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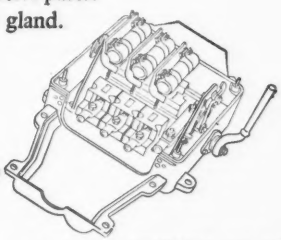

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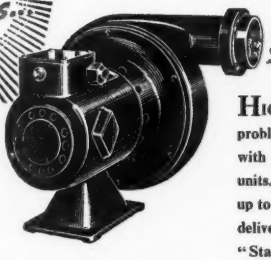

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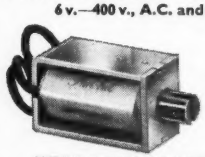

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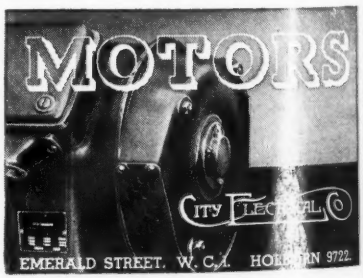

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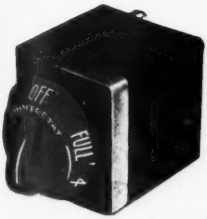
AND NOW!

The Sunvic one-circuit Radiant boiling plate



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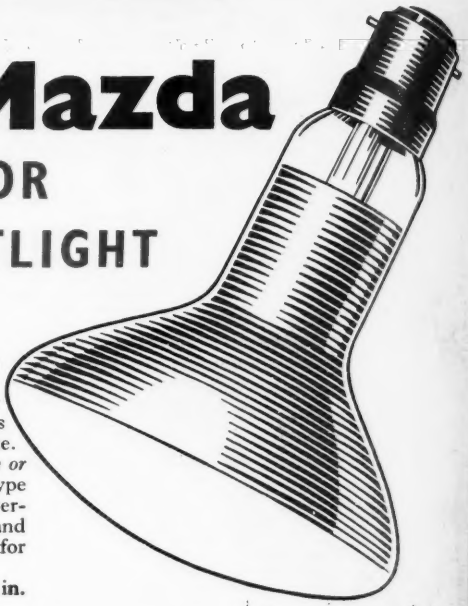
New Mazda REFLECTOR SPOTLIGHT



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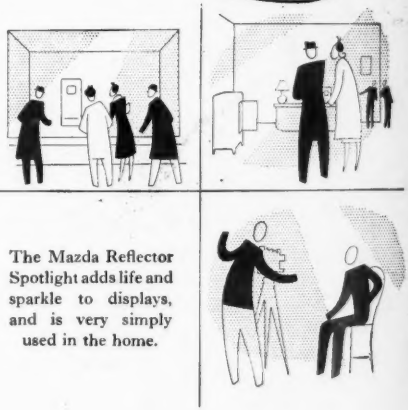

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